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ABSTRACT

Transformations of rural areas was the topic of the first Polish-Yugoslav Geographical Seminar as documented in these proceedings from the six-day meeting. Twenty of the 25 papers presented are contained here, three in French and the remainder in English, and are categorized under these major topics: influence of big urban centers on the transformation of rural areas, impact of urbanization and development of recreation, demographic changes of rural areas, transformations of agriculture, regional case studies, and the concept of rural areas from both environmental and functional viewpoints. Paper subjects include: Belgrade's influence on its environs; Warsaw's role in rural area change; urbanization of the Upper Silesia and Cracow countryside; urbanization's impact on rural population structures in Macedonia; impacts of urbanization and/or tourism on Ohrid Basin, Vrboska, and Podhale; functions of supply in the spatial organization of the Slovenska Bistrica commune; postwar population changes in Poland's rural areas; changes in Poland's agrarian structure 1945-70; changes in production orientations of individual farming in 1960, 1965, 1970; studying agricultural-geographical aspects of mountainous areas; case studies of the Lower Savinja Valley, Slovenia, Kosovo Province, and Polog Basin; environmental management in rural areas; rural areas as a multifunctional space. (RS)

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POLISH ACADEMY OF SCIENCES
INSTITUTE OF GEOGRAPHY AND SPATIAL ORGANIZATION

TRANSFORMATION OF RURAL AREAS

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Proceedings of the 1-st Polish-Yugoslav Geographical Seminar

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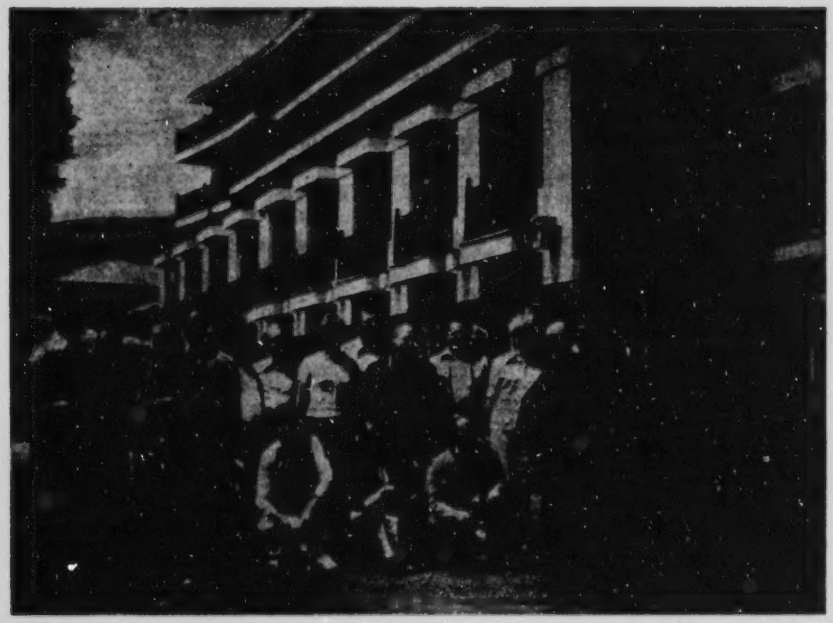
PREFACE

The first Polish-Yugoslav Geographical Seminar organized by the Commission for Scientific Activities of the Association of Geographical Societies of Yugoslavia, the Geographical Institute of the University of Skopje and the Macedonian Geographical Society was held on 24 to 29 May, 1975 in the town of Ohrid, Macedonia.

26 Yugoslav geographers represented the universities of Belgrade, Skopje, Ljubljana, Zagreb and Priština, the Institutes of Geography of the Serbian and Slovenian Academies of Sciences and Arts, the Higher School of Economics in Novi Sad, the Teachers' Training Colleges in Bitola and Štip as well as the secondary schools from Strumica, Štip, Radoviš and Ohrid. The Polish delegation consisted of 12 persons representing the Institute of Geography and Spatial Organization, Polish Academy of Sciences, the universities of Cracow, Poznań and Wrocław, and the Higher Teachers' Training School in Cracow. Some foreign geographers from Britain, Ireland and the USA, visiting Yugoslavia at that period, took also part in the Seminar as guests.

The seminar main topic was the transformations of rural areas. The programme consisted of paper sessions and discussions in Ohrid and field trips to Western Macedonia. The papers were presented and the discussion was carried on in the participants' own languages, while



Phot. 1 The participants of the Seminar

written texts or summaries of the papers were submitted in the official (congress) languages of the International Geographical Union (IGU), i.e. in English or French, to be distributed among the participants.

The following papers were presented and discussed during the seminar five sessions.

1. M. Panov (University of Skopje). The influence of urbanization on the structural changes of the rural population in the S. R. of Macedonia.

2. S. Leszczycki (Institute of Geography and Spatial Organization, Polish Academy of Sciences). The protection of man's environment and regional planning.[1]

3. A. S. Kostrowicki (as above). Interactions between natural environment and the forms of environmental management in rural areas.

4. A. Marsz (Poznań University). Methods of the assessment of natural conditions used in the planning of rural areas in Poland.

5. R. Szczęsny (Institute of Geography... PAN). Changes and trends in the spatial pattern of types of individual agriculture in Poland 1960—1970.

6. R. Kulikowski and J. Szyrmer (as above). Changes in the production orientations of the individual agriculture in Poland 1960—1965—1970.

7. J. Medved (University of Ljubljana). Methodology of studying the agricultural-geographical aspects of mountainous areas.

8. M. Klemenčič (University of Ljubljana). Abandonment of agricultural land in the phase of transition from agrarian to industrial society. A case study of Slovenia.

9. W. Tyszkiewicz (Institute of Geography ... PAN). The transformation of the agrarian structure in Poland 1945—1970.

10. M. Lutovac (Institute of Geography, Serbian Academy of Sciences). Influence de Belgrade sur les changementa dans les environs de la ville.

11. M. Natek (University of Ljubljana). Socio-economic changes in the hop-growing region of the Lower Savinja Valley.

12. A. Jagielski (Wrocław University). Postwar population changes in the rural areas of Poland.

13. J. Grocholska (Institute of Geography ... PAN). The influence of urbanization on transformations of rural areas with special regard to the role of Warsaw.

14. S. Nikolič (University of Belgrade). Changes in the density of agricultural population of Serbia.

15. V. Točkovski (Teachers' Training School, Bitola). Urbanization and rural transformation of the Bitola commune.

[1] published in full in Geographia Polonica 33, 1976, p. 5—18.

16. A. Puška (University of Priština). The distribution of rural population. Structural changes and the impact of such distribution on the general development of Kosovo.

17. J. Rajman (Teachers' Training College, Cr ow). Urbanization of the Upper Silesia and Cracow voivodship countryside and the socio- professional stratification of population.

18. M. Žagar (University of Ljubljana). The role of traffic in the countries transformations.

19. A. Stoimilov (University of Skopje). L'influence du tourisme sur l'habitat rural autour du Lac Ohrid.

20. A. Jackowski (Cracow University). The influence of tourism on rural settlements of the Podhale Basin.

21. Z. Pepeonik (University of Zagreb). The village of Vrboska on the Island of Hvar. An example of a current transformation of a rural settlement in Yugoslavia under the influence of tourism.

22. V. Gramatnikovski (University of Skopje). Socio-agrarian changes in the Ohrid Basin under the influence of urbanization and the development of tourism.

23. M. Pak (University of Ljubljana). The functions of supply in the spatial organization of the commune of Slovenska Bistrica.

24. B. Jačimovič (University of Belgrade). Transformation of rural areas in the Polog basin, North Western Macedonia.

25. W. Stola (Institute of Geography ... PAN). Rural areas as a multifunctional space.

Very broad and often heated discussions were summarized by J. Kostrowicki, B. Leszczycki, M. Lutovac and M. Panov.

The following statements and decisions were included in the unanimously accepted resolution. "... 25 papers concerning the assessment of natural conditions, the protection of natural environment of rural areas, the transformations of agriculture, rural settlement, agricultural and rural population, industrialization and urbanization, the development of recreation as well as on the impact of those processes on the transformations of rural areas and finally the problems and methods of the integrated planning of rural areas as multifunctional space were presented and discussed.

In the discussion both theoretical and methodological problems were raised as well as the practical application of geographical research to the spatial planning of rural areas. Opinions were also exchanged as to the various scientific and practical solutions in both countries. The need for faster development of geography of recreation as a separate geographical discipline was emphasized.

The need for closer contacts with FAO, which for some years has been organizing international discussions on the planning of rural areas, as well as for a broad cooperation with the IGU Working Group on Rural Planning and Development was also underlined. The participants expressed the opinion that this group ought to be converted into a full--fledged IGU Commission.

Being convinced that the results of the seminar should be rendered accessible to all interested research workers and planners of both the participant and other countries the participants decided to confer the publication of the seminar papers in the Slavonic languages to the Yugoslav side and in the congress languages to the Polish side.

As the scientific and practical utility of such exchanges of ideas has highly been appreciated by the participants, they decided that such meetings should be continued in future and therefore they accepted the Polish invitation to held the 2nd Polish-Yugoslav seminar in Poland in 1978 or 1979.

The participants of the symposium conferred their sincere thanks to all the institutions that contributed to the success of the Seminar and personally to professor M. Panov, president of the Macedonian Geographical Society, and his associates for the organization of the Seminar, to professor V. Klemenčič, president of the Commission for Scientific Activities of the Association of the Geographical Societies of Yugoslavia, and his cooperators Docent M. Pak and Mr. M. Klemenčič for their assistance in the preparation of the Seminar, as well as to Dr W. Tyszkiewicz, the secretary of the Polish delegation, for her effort in organization of the Polish participance in the Symposium".

Already going from Skopje through Tetovo and Kičevo to Ohrid the Polish delegation had an occasion to get acquainted with some problems of Western Macedonia. Further field trips were organized during the Seminar to the recreational centres situated around Lake Ohrid. After the Seminar the participants went across south-western Macedonia from Ohrid through Bitola, Kruševo, Titov Veles to Skopje.

For various reasons not all of the papers presented in Ohrid could be included in the present volume. They have also been rearranged according to their topics, starting with the problem of influence of big urban centres on the transformation of rural areas, then passing to the impact of urbanization and the development of recreation to be followed by the papers on demographic changes of rural areas and subsequently by those concerning the transformations of agriculture. Following some regional case studies the volume ends with the discussion of the concept of rural areas from both the environmental and the functional viewpoints.

Jerzy Kostrowicki, Wiesława Tyszkiewicz

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INFLUENCE DE BELGRADE SUR LES CHANGEMENTS DANS LES ENVIRONS DE LA VILLE

Toute ville exerce, plus ou moins, une certaine influence sur ses propres environs et inversement. Ces influences dépendent du conditionnement géographique et des circonstances historiques et sociales. Belgrade occupe une position géographique très favorable, sur la ligne de contacts entre deux grandes régions, le Bassin Pannonien et la Péninsule Balkanique, au confluant de deux fleuves où convergent des routes fluviales et continentales de grande importance. Il faut aussi ajouter les environs fort propices aux nombreuses cultures agricoles.

Malgré de telles conditions géographiques, ni Belgrade ni ses environs n'avaient abouti, jusqu'à la première guerre à aucun progrès important. Ceci dû au fait que cette ville, précisément à cause de sa situation géographique, fut le théâtre de luttes et de conquêtes et reconquêtes successives. Même lorsqu'elle devint capitale de la Serbie restaurée cela ne se fit pas sentir à cause de sa situation limitrophe. Ce n'est qu'avec la création de la grande Yougoslavie, en 1918, que Belgrade obtient un vaste arrière-pays et que l'industrie commença à se développer dans la ville. Alors se manifestèrent les avantages géographiques de Belgrade, rayonnant dans différents domaines : économie, habitats, communications et culture. Avec le développement de l'industrie et l'affluence rapide de la population venant des différentes régions, la ville s'aggrandit. Les villages plus proches ont été incorporés dans la ville et les autres, un peu plus éloignés, ont assumé les fonctions économiques de la banlieue. Les habitants des villages avoisinants sont devenus producteurs des légumes, du lait, des produits laitiers et des fruits, de plus en plus nécessaires à la ville. Cette influence ne s'est pas arrêtée aux villages voisins, mais s'est fait sentir dans un cercle assez vaste, le long des routes nouvellement construites. C'est particulièrement évident ces 10—15 dernières années.

Nous allons exposer brièvement et d'après les phases de l'évolution en quoi ces changements consistent et de quelle façon ils se manifestent.

Au milieu du XIX^{e} siècle encore, Palilula, aux portes de Belgrade

et à présent au centre de la vile, ne différait en rien d'un village de l'économie vivrière, basée sur la culture du sol et l'élévage. L'unique trait qui rappelait la proximité d'une population urbaine était la présence des jardins potagers le long du ruisseau dit Bulbulderski Potok dans la rue actuelle de Cvijić. Tout le reste de cette surface séparant la ville et le village étaient en général des pâturages où broutait le bétail.

Après avoir attiré à elle le quartier de Palilula tout entier, Belgrade s'est développée en bandes étroites dans les directions de la route de Smederevo, de Čubura et de la rue actuelle du Prince Miloš. Mais s'est seulement après la fin de la première guerre mondiale que des changements importants commencent à se faire sentir aussi bien à Belgrade qu'aux environs de la ville. Belgrade, qui était devenu centre administratif et politique d'un vaste État, est le point d'attraction pour tout le pays. En outre, l'industrie commence à se développer à Belgrade. Tout cela attire un grand nombre de gens qui influent sur les changements qui se produisent dans la ville et dans les environs. De nouveaux habitats surgissent non seulement dans la prolongation des directions susmentionnées, mais aussi sur les pentes et dans les vallées : Bulbulderski Potok, Vračar, Pašino Brdo, Dušanovac, Voždovac, Marinkova Bara, Karaburma et Rakovica. En outre, dans les vignobles situés sur la colline de Dedinje, les riches commerçants et autres gens aisés construisent des " villas " et c'est de cette façon que se forme un nouveau type d'habitat. Les quartiers, jusque là périphériques, tels que Senjak, Čukarica, Stari Djeram, Novo Selo, Hadži Popovac, qui avaient un caractère semi-rustique adhèrent graduellement à la ville. De leurs vastes cours disparaissent les petites vignes et les étables où l'on gardait le bétail, les vaches surtout.

Les changements qui se produisent à Belgrade se reflètent également sur les environs. Tout d'abord, dans son expansion territoriale Belgrade approche des villages de Mali Mokri Lug, Mirijevo, Višnjica, Banjica et Žarkovo. Leur proximité et les besoins de la ville influent sur l'activation de l'économie de banlieue dans ces villages et dans certains autres : maraîchage à Višnjica, Mirijevo, Slanci, Veliko Selo et Vinča et fructiculture et viticulture à Ritopek, Grocka, Begaljica et dans les autres villages situés aux bords du Danube. Dans les villages susmentionnés, et surtout dans certains autres, l'on commence aussi l'élevage des bovins en rapport avec les besoins croissants de lait. Par conséquant, dans cette période de l'évolution l'on différencie de plus en plus, aussi bien en ce qui concerne les branches de l'agriculture qu'en ce qui concerne l'aisance. Le maraîchage, la culture des fruits et la production du lait sont d'une grande importance ; les villages qui s'en occupent principalement, font leur entrée dans l'économie du marché et des échanges monétaires.

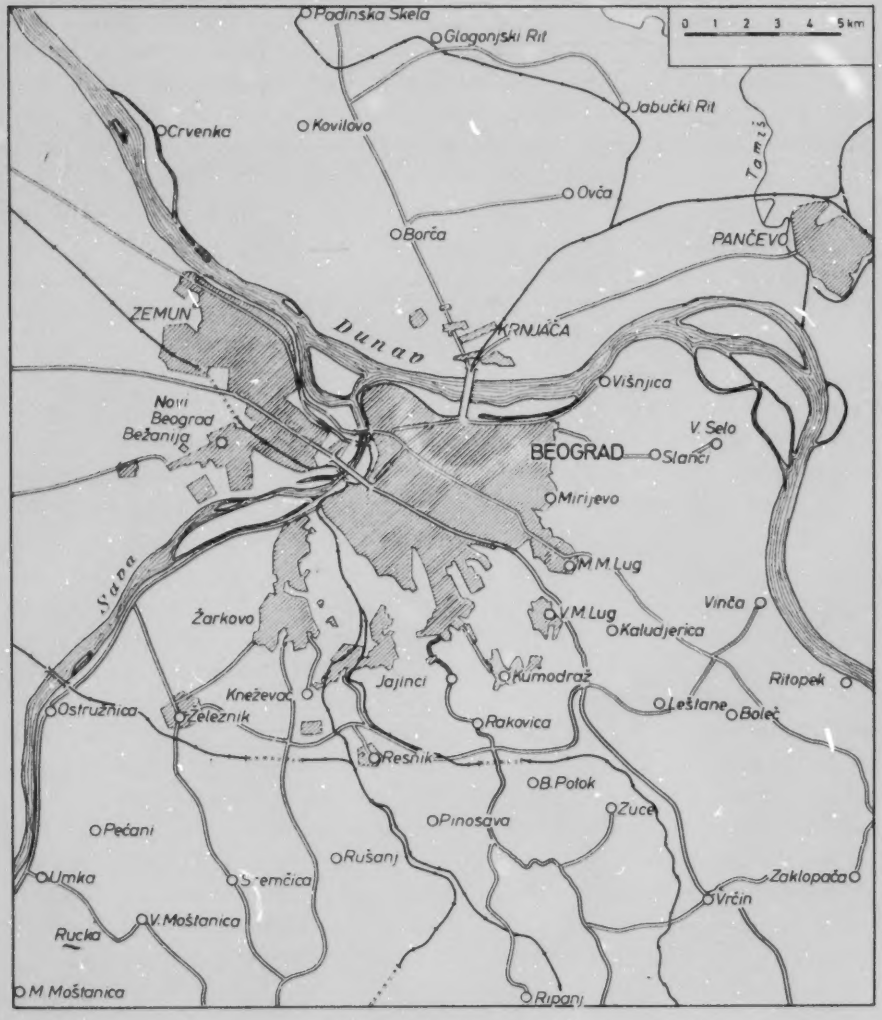

Fig. 1. Belgrade et ses environs

Pourtant, ce progrès ne semble pas avoir exercé une influence proportionnelle sur les autres aspects de la vie. De nombreux villages, à proximité immédiate de Belgrade, n'avaient jusqu'à la fin de la deuxiéme guerre mondiale aucune personne qui eût terminé des études dans une école secondaire ou autre. Même la maison, sauf quelques exceptions assez insignifiantes, est restée identique à celle de la période précédente. Les chefs de ménages qui possédaient jusqu'à 50 vaches n'avaient pas de maison qui correspondait à cette richesse. On observait de telles analogies chez les autres paysans aisés. De telles anomalies peuvent être expliquées par la tendance de ces agriculteurs à élargir, par l'achat de la terre, leurs propriétés et à acquérir d'autres objets de valeur.

Les changements les plus importants ne se produisaient qu'après la deuxième guerre mondiale lorsque, sous les nouvelles conditions économiques et sociales commence le transformation rapide de l'économie, des communications, de l'habitat, de la démographie et de la culture. La cause la plus importante de ces changements est en rapport avec l'industrie qui se développe aussi bien dans la ville qu'aux environs. Cette industrie attire les gens, non seulement des alentours de la ville, mais aussi des régions très éloignées de la Yougoslavie. Quelles ont été les conséquences de ces mouvements de la population et de la transformation en général, nous le verrons le mieux si nous les suivons selon les phases et dans tous les aspects de la vie.

Belgrade s'est développée lentement, bien qu'elle occupât une des situations parmi les plus favorables au monde. Les causes en sont très nombreuses. La ville fut pendant longtemps le théâtre des luttes entre l'Orient et l'Occident. Après la libération de la domination turque elle était une ville frontière. En outre, à la Serbie préoccupée de l'idéal de la libération, il ne restait pas de moyens pour le développement de Belgrade. Même ce qui avait été construit, fut détruit au cours de deux guerres mondiales. Après cela, il se produisit un mélange du vieux et du nouveau bâti à la hâte. Les plans urbains n'étaient pas faciles à réaliser même au centre de la ville à cause de la résistance qu'y opposaient les propriétaires de certaines petites maisons. La conséquence en est le manque d'homogéneité dans la partie centrale de la ville dans laquelle se sont élevés à côté des bicoques, de hauts bâtiments à plusieurs étages.

Après la deuxième guerre mondiale ce problème s'est intensifié à cause du développement de l'industrie et de l'affluence rapide de la population. Il a fallu, à la place du vieux et des ruines, élever le nouveau et construire de nouvelles habitations. Le développement planifié n'a pas toujours pu suivre l'affluence rapide de la population et il surgissait, d'année en année, des " bidonviles " et ce n'est que tout récemment qu'on en a empêché la construction.

Nous allons exposer brièvement l'évolution de Belgrade après la deuxième guerre mondiale. Comme auparavant, son expansion a suivi le direction des routes et des voies d'accès. Les axes principaux sont : la route de Smederevo, la route d'Avala et les routes qui conduisent le long du Danube, de la Save et du ruisseau de Topčider. Belgrade s'est étendue aussi au bord du Danube. Un de ses nouveaux quartiers s'est développé à Karaburma, dans la direction des villages de Višnjica et de Mirijevo.

Sur les rives droites de la Save et du Danube le processus de l'évolution de la ville est très marqué. Il ne se reflète pas uniquement dans la prolongation de la nouvelle partie de Belgrade entre la Save et Zemun, mais également dans d'autres directions. La nouvelle agglomération de Krnjača s'est développée du côté gauche du pont de Pančevo et le village de Bežanija fur rattaché au Nouveau Belgrade. Par conséquant, dans son développement hâtif, la ville a déjà englobé certains villages voisins et les nouvelles agglomérations. Grâce au développement rapide de ces dernières dans les finages agricoles, les villages de la banlieue se rattachent davantage à la ville. Cette évolution est accélérée, outre la construction des routes, par la perte de l'ancienne base agricole. Il se trouve qu'un de ces villages de la banlieue soit vite absorbé par la ville grâce à l'édification de nouveaux habitats qui l'entourent, comme c'est le cas pour Žarkovo et Mirijevo. L'ancien village reste au centre pour se transformer graduellement et s'adapter aux nouvelles conditions tels quels les villages de Veliki Mokri Lug, Kumodraž, Kneževac, Resnik etc. Quoique ces villages aient perdu leur base agricole antérieure, l'agriculture s'y maintient tout de même sous la forme du maraîchage, de la culture des fruits, des fleurs et de l'élevage des volailles. Cependant, la maison, à cause des besoins croissants, s'adapte à la ville d'autant plus vite que l'agglomération perd sa structure agricole et s'oriente vers d'autres occupations liées aux entreprises dans la ville. Ceci est influencé par le plan d'urbanisation et aussi par la tendance des anciens agriculteurs à construire une maison aussi belle que possible pour la louer à des immigrants venus des différentes régions du pays. Ces immigrants préfèrent s'installer dans les villages de la banlieue qu'en ville. Les raisons en sont multiples : en premier lieu, l'agriculteur est lié à la terre, et en deuxième lieu, il peut, s'il s'installe dans un village de la banlieue, mener une double économie — cultiver une petite parcelle, tenir une vache, un porc et des volailles tout en travaillant à l'usine. En outre, dans un village de la banlieue, il est plus facile de bâtir une maison et de conserver l'ancienne façon de vivre.

Comme on l'a déjà mentionné avec le développement de Belgrade se produisent des changements surtout en ce qui concerne les principales cultures de banlieue, maraîchage et fructiculture. Des anciens jardins

privés qui entouraient directement Belgrade, la culture maraîchère a été transportée, après 1920, dans les villages de Višnjica, Mirijevo, Slance, Veliko Selo, Vinča où elle a occupé d'importantes surfaces. Elle est actuellement la principale source de richesse des localités susmentionnées. Chaque ménage y pratique le maraîchage. A présent, l'on commence la culture maraîchère aussi dans quelques villages qui s'occupaient jusqu'à récemment de l'élevage des vaches, tels que Mali Mokri Lug et Veliki Mokri Lug, Leštane et Kaludjerica. Sous l'influence du développement de la ville le maraîchage gagne du terrain aussi sur la rive gauche du Danube et de la Save. Borča, Ovča et les nouvelles agglomérations de Pančevački Rit (Krnjača, Besni Fok, Kovilovo, Lepušnica, Padinska Skela, etc.) fournissent Belgrade en importantes quantités les légumes et le lait. Cependant, sur la rive gauche de la Save, le maraîchage s'est développé surtout près de Zemun et de Batajnica. En outre, à l'heure actuelle même la grande île de Ratno Ostrovo au confluent de la Save et du Danube est sous les cultures maraîchères.

La structure du maraîchage a continuellement changé, s'adaptant aux besoins des citadins. Les besoins croissants en légumes pendant la plus grande partie de l'année a poussé les gens à cultiver les espèces qui mûrissent en différentes saisons, pour assurer la continuité de l'approvisionnement depuis le début du printemps jusqu'à la fin de l'automne. A cet effet on a commencé également à construire des serres et des plates-bandes chaudes. Le maraîchage dans les environs plus proches et plus éloignés de Belgrade peut en général satisfaire les besoins de la ville.

Les environs de Belgrade sont, par leurs conditions naturelles, très appropriés à la viticulture et à la culture de nombreuses espèces de fruits, particulièrement les versants escarpés qui font face à la Save et au Danube. La fructiculture y est pratiquée depuis toujours en quantités qui ne sortent pas du cadre des besoins du ménage. Pourtant, après la deuxième guerre mondiale, se produisent des changements dans la fructiculture et la viticulture. La viticulture s'oriente vers les sortes de table et la fructiculture vers les sortes d'une meilleure qualité qu'exige un marché développé. Les agriculteurs cultivent à présent sur des superficies importantes précisément ces espèces pour lesquelles le climat est favorable et le marché proche, tels les pêches, les abricots, les cerises, les poires, les fraises. Les arbres fruitiers ont occupé en peu de temps d'importantes surfaces, surtout à Ritopek, Grocka, Zaklopača, Begaljica et Brestovik où la culture des fruits avec la viticulture représentent la principale branche économique. Mais ces localités diffèrent également l'une de l'autre en ce qui concerne la structure de ces cultures, dépendant des conditions locales, c. à d. du micro-relief et du micro-climat.

Dans les finages de Ritopek et de Grocka sont cultivées les meilleures sortes de pêches, de cerises et de poires. Les agriculteurs suivent avec grand intérêt la production de nouvelles sortes de meilleure qualité qu'ils substituent aux vieilles plantations. Ceci est remarqué spécialement pour les pêches à Grocka, localité connue pour la production des pêches dans toute la Yougoslavie. Les fruits qui mûrissent en trois ou quatre périodes, se distinguent par leur succulence, leur beauté et leur grosseur. La sorte de "Halle" y atteint un poids jusqu'à 500 gr. On cultive également diverses sortes de cerises qui mûrissent en de très courts intervales de temps.

La majeure partie de l'activité et de la vie de ces agriculteurs est consacrée à la culture des fruits. La question de la livraison des produits sur le marché présente un certain intérêt, vu que le développement de la production en dépend. Les cultivateurs suivent de près la demande et orientent la plantation vers les sortes de fruits et d'autres cultures agricoles qui sont les plus recherchées. Au début ils étaient liés uniquement au marché de Belgrade et c'est seulement lorsque celui-ci est devenu incapable de consommer l'entière quantité de leur production qu'ils commencèrent à se diriger vers les villes plus éloignées : Ljubljana, Rijeka, Split, Dubrovnik, Slavonski Brod, Sarajevo et le littoral adriatique en général. Ils y portent la marchandise, bien entendu, aussi à cause des prix qui y sont plus élevés qu'à Belgrade. On exporte les fruits et les raisins par trains et par camions et, pendant la saison touristique, même par avion. Le marché de Dubrovnik apprécie particulièrement les grosses et belles pêches. Bien qu'on exporte beaucoup de fruits, Belgrade reste tout de même le plus grand consommateur. Pour cette raison et aussi à cause des conditions favorables, dans les environs de Belgrade se sont développées de grandes plantations coopératives de fruits (pêches et poires). Elles occupent d'énormes superficies dans l'espace situé entre Ritopek et Zaklopača, dans les environs de Barajevo, Veliki Borak, Grocka, Radmilovac, Vinča, Boleč et dans les autres régions des environs fertiles de Belgrade.

Il faut mentionner ici aussi les fraises dont la culture en expansion occupe de plus en plus d'espace. Elles furent cultivées d'abord a Grocka, Begaljica et Zaklopača où l'on les cultive encore sur de grandes superficies. Pourtant, la fraise cède la place à la fructiculture, car elle peut être cultivée même aux endroits qui ne sont pas appropriés à cette dernière. Ainsi, le centre de la culture des fraises se déplace vers les villages le long de la route Belgrade-Požarevac où il y a pour les fraisiers assez de surfaces disponibles sur lesquelles les arbres fruitiers ne donnent pas de bons fruits.

Une branche typique de l'économie de banlieue est aussi la floriculture qui a maintenant une assez grande importance dans l'économie des

exploitations individualles, surtout à la périphérie de la ville et dans les villages de la banlieue. Lorsque Belgrade n'était qu'une petite agglomération urbaine à maisonnettes basses et à vastes cours, on cultivait les fleurs uniquement comme ornement autour de la maison. Avec la construction de hauts bâtiments à plusieurs étages et le développement de la coûtume d'offrir des fleurs comme cadeau pour différentes occasions, la culture des fleurs assume une autre importance. Les fleurs deviennent un objet de commerce et les particuliers commencent à les cultiver sur de grandes superficies. Les régions les plus appropriées à la floriculture sont les faubourgs où il y a assez de terrain et des liens faciles avec le marché. Ces jardins où l'on cultive les fleurs sont le plus souvent situées à Voždovac, Pašino Brdo, Dedinje, Banjica, Karaburma, Pančevački Rit, Padinska Skela, Boleč, Mali Mokri Lug et Veliki Mokri Lug et dans d'autres villages.

L'élevage aux environs de Belgrade a également changé sous les nouvelles conditions. Les habitats qui s'adonnent au maraîchage et à la fructiculture réduisent l'élevage d'une espèce de bétail et augmentent l'élevage d'une autre, selon les nouvelles circonstances et les nouveaux besoins. Le nombre de chevaux avait rapidement augmenté à cause des besoins relatifs au transport des légumes et des fruits sur le marché. Pourtant, depuis qu'on a récemment interdit aux voitures à cheval l'entrée de la ville, le nombre de chevaux a diminué et l'on est passé à l'utilisation des véhicules à moteur. A l'heure actuelle, presque tous les maraîchers et les fructiculteurs portent leurs produits au marché au moyen d'automobiles et autres voitures à moteur.

Le boeuf disparaît entièrement et la vache laitière occupe une nouvelle place dans l'économie domestique des familles aisées et généralemet dans les exploitations qui ne possèdent pas de jardin et vendent le lait en ville. Il y avait des ménages qui avaient jusqu'à 20 vaches laitières. Par exemple Moža Spasojević de Žarkovo possédiat à la veille de la guerre de 1941 plus de 50 vaches et portait chaque jour environ 400 l de lait sur le marché. Le lait était, dans la plupart des cas, livré directement à domicile su consommateur. Ce genre d'économie s'était maintenue non seulement dans les villages, mais aussi à la périphérie de la ville : à Voždovac, Zvevdara, Rakovice, Banovo Brdo et Pašino Brdo, ainsi qu'à Padinska Skela et Bežanija, de l'autre côté de la Save et du Danube. Pourtant, depuis qu'on a interdit, en 1956, la vente du lait aux producteurs individuels de particulier à particulier, le nombre de vaches a commencé à décroître. Cela ne veut pas dire que cette économie a cessé d'exister ; on continue à élever des vaches, car les producteurs individuels s'orientent vers la fabrication du fromage dont la vente au marché n'est pas interdite. A présent, le plus grand nombre de vaches est élevé dans certains villages dont les finages restent encore en dehors de l'ex-

pansion des nouvelles agglomérations, tels que Zuce, Beli Potok, Resnik et certains autres villages de la périphérie plus éloignée de Belgrade.

Bien que l'agriculture avancée de ces villages apporte un grand revenu, on remarque la tendance des jeunes à abandonner la culture du sol et à exercer d'autres professions en ville, même sans égard au revenu. Ils comptent souvent sur le travail de leurs parents auxquels ils viennent parfois en aide le dimanche pour vendre leurs produits au marché, afin d'améliorer leur situation financière d'employés.

Tout comme à Belgrade, de grands changements se sont produits également dan l'habitat et dans le mouvement de la population dans les environs de la ville. C'est surtout remarquable dans les villages situés aux environs directs de la ville ou à côté des routes et des voies d'accès principales. A côté des routes ou à proximité de celles-ci se forment deux types d'habitats : les uns se rangent en ligne le long de la route, tandis que les autres sont groupés en agglomérations plus ou moins grandes, adhérant à l'ancien village. Les premiers sont construits par certains immigrants et les paysans des villages voisins qui désirent avoir accès à la route, tandis que les autres ne sont bâtis que par les immigrants, surtout ouvriers et employés d'usines et d'institutions. Ils avaient acheté des terrains à bâtir aux propriétaires individuels ou du village en tant que communauté. Les habitats de ce type surgissent le plus souvent sur les anciens pacages de village. Par conséquent, ces lotissements ont conditionné aussi l'édification de l'habitat groupé. En outre, dans les environs de Belgrade apparaissent aussi d'autres habitats aux caractères touristique, sanitaire, sportif, etc., à Avala, Trešnja, Košutnjak, ainsi que de nombreux établissements de bains le long de la Save entre Belgrade et Umka.

Toutes cettes institutions et certaines autres qui sont liées l'une à l'autre par des routes ont donné lieu à un mouvement animé de la population aussi bien du village que de la ville. Aujourd'hui il n'y a presque plus de maison de village dans les environs de Belgrade dont au moins un membre de famille n'aille travailler à l'usine, à l'exception toutefois des ménages aisés, composés d'un homme, d'une femme et de leurs enfants seulement. La plupart des ouvriers viennent des agglomérations situées le long des voies carossables et des lignes ferroviaires. L'influence de Belgrade à cet égard s'étend dans un cercle de 50 km de rayon, puis les influences des autres localités industrielles (Mladenovac, Smederevo, Požarevac etc.) commencent à se faire sentir. Les moins touchés par le départ de jeunes gens dans les entreprises industrielles sont les habitats pratiquant le maraîchage et la fructiculture de façon intensive, tels que : Ritopek, Slanci, Višnjica, Vinča, Veliko Selo, Zaklopača, Begaljica.

L'influence des communications et, par l'intermédiaire de celles-ci, de l'économie et du trafic n'est pas uniquement visible dans les villages de la banlieue, mais aussi dans les autres villages. Les anciens villages qui se trouvaient à l'écart des routes s'étendent à présent, par leurs nouvelles parties le long des voies d'accès sur les principales routes de Belgrade. On remarque particulièrement de grands changements sur la maison dont l'évolution était, sauf quelques exceptions, en stagnation depuis longtemps. Même les maisons des paysans aisés ne différaient que peu de celles des autres, sauf en ce qui concerne le nombre de bâtiments. Ces anomalies, comme nous l'avons déjà dit ailleurs, peuvent être expliquées par la tendance à donner la préférence à la terre et aux autres objets de valeur plutôt qu'à la maison. A présent, il est évident qu'il y a une compétition entre ceux qui construisent les maisons pour qui aura la meilleure maison et élevera la plus belle porte et la plus belle clôture autour de celle-ci. La maison se transforme, elle-même, beaucoup plus vite que l'agriculture. Les maisons ne peuvent plus être construites comme autrefois, là où l'on voulait et où l'on pouvait. On les bâtit strictement selon un plan urbain, particulièrement dans les parties centrales de la ville. Les maisons non seulement des villages de la banlieue, mais aussi des autre villages des environs de Belgrade ne diffèrent pas actuellement de la maison urbaine, elles sont même luxueuses en certains endroits. L'unique différence consiste dans le fait que les maisons de village ont, derrière le bâtiment principal, des bâtiments destinés à l'agriculture.

Sous l'influence de ces belles maisons nouvellement construites qui sont le résultat d'une production agricole avancée, du marché et du travail en ville, on prend possession également de beaux meubles. A vrai dire, il y a aussi des ménages ruraux qui attachent plus d'importance à l'aspect extérieur de la maison et de la porte cochère qu'a l'intérieur même de la maison.

Les influences de la ville sont encore plus évidentes dans la construction des maisons de week-end, des villas et des maisons de campagne de différentes dimensions et de différents styles. L'on rencontre dans tous les principaux accès de la ville à 30—40 km de distance l'un de l'autre, de tels habitats provisoires. On les remarque surtout le long de la route Belgrade-Smederevo (Grocka) ; Belgrade-Avala-Mladenovac ; Belgrade-Barajevo, le long de la route d'Ibar et ensuite sur les pentes le long de la Save dans la direction d'Obrenovac et sur celles de la montagne de Fruška Gora dans la région de Srem. Ces habitats s'insinuent même dans les villages plus éloignés et hors des routes principales. Évidemment, la construction de cettes maisons se fait sous l'influence du développement de Belgrade, des routes, de l'automobilisme et de l'aisance de ses habitants. Pourtant, se pose aussi la question des besoins plus ou moins grands. A ce qu'il semble, c'est une tendance prédominante à investir son

argent et acquérir un prestige personnel quelconque et non pas un bésoin réel car, dans la plupart de ces maisons on n'habite que très peu souvent, et, par conséquent, bien qu'elles soient belles et attrayantes d'un point de vue architectonique, elles représentent d'une certaine manière un capital amorti. Quoi qu'il en soit, avec ces beaux édifices Belgrade et ses environs gagnent en importance et ce non seulement au sens urbain du mot, mais aussi dans l'aspect de ses environs.

Conclusion. — Comme notre exposé le montre, le processus du développement et de la transformation de l'habitat de Belgrade et des environs de la ville ont conditionné les changements socio-historiques. Tout changement à cet égard s'est refleté aussi sur les agglomérations. Dans chaque phase initiale, comme selon une règle, se sont formés, sans plan ni méthode, des habitats mi-ruraux, mi-urbains. Dans la seconde phase de l'évolution, ces agglomérations se sont soudées entièrement à la ville et de nouveaux quartiers sont apparus. Ceci s'est répété à plusieurs reprises jusqu'à ce que ces agglomérations saillantes à côté des principaux accès n'aient attiré aussi les villages avoisinants dans la sphère de la ville. De tels processus ont été particulièrement rapides au cours des 15 dernières années. En un mot, Belgrade se trouve à présent au stade du plein développement révolutionnaire. Pourtant, la ville n'est pas encore devenue homogène au sens urbanistique du terme. Certains de ses quartiers périphériques ne sont pas encore soudés à la ville. En outre, même dans les parties de la ville jusqu'à récemment périphériques et qui se trouvent à présent au centre, on remarque les traces des habitats ruraux, surtout visibles sur la maison.

Parallèlement au développement de l'industrie et de la communication se sont produits aussi des changements dans les villages. Sous ce rapport on peut distinguer trois groupes d'habitats ruraux. Les villages les plus proches (Mali Mokri Lug, Banjica, Kneževac) sont entrés, au point de vue territorial, dans le cadre de la ville. A cause de l'expansion de la ville dans leurs finages ils ont perdu aussi leur base agricole. Presque tous les hommes sont engagés en dehors de la profession agricole. Sur le peu de terre qui leur reste autour des maisons, les gens les plus âgés cultivent les fruits et les légumes. Cette agriculture disparaîtra, bien entendu, à son tour aussi lorsque l'urbanisation totale aura été effectuée.

Dans la seconde zone de banlieue entrent les villages de Mirijevo, Višnjica, Veliki Mokri Lug et Žarkovo, dont les terrains agricoles sont en partie englobés par les nouvelles agglomérations et, par conséquent ont perdu une partie de leurs surfaces agricoles. A cause de cela et à cause de la proximité de Belgrade, leur population s'adapte, au point de vue économique, de plus en plus à la ville ; leurs habitants travaillent en partie dans l'industrie et en partie pratiquent l'agriculture de ban-

lieue. Dans la suite du processus d'évolution, ces habitats seront également insérés dans la structure urbaine.

Dans la troisième zone d'habitats, plus éloignée, l'agriculture se maintient au niveau d'autrefois. Pourtant, grâce au développement des communications, un très grand nombre de leurs habitants travaillent à Belgrade ou dans d'autres centres industriels locaux. Ces agglomérations sont situées surtout le long des communications ferroviaires et des routes ; tels que : Beli Potok, Zuce, Vrčin, Umčari, Mali Požarevac, Ivanča, Boleč, Leštani, Kaludjerica, Resnik, Pinosava et Ripanj. Il est intéressant de souligner ici que certains villages qui ne sont pas éloignés de Belgrade et des voies de communications (Slanci, Ritopek, Veliko Selo, Begaljica, Zaklopača et Grocka) ne sont pas liés à Belgrade par le travail de leurs habitants. Nul doute que cet état de choses est dû, en premier lieu, au fait que la fructiculture, le maraîchage et la viticulture y sont très développés. La main-d'oeuvre souvent même manque, comme c'est le cas pour Ritopek et Mirijevo, et ils sont obligés en pleine saison des travaux des champs d'engager du personnel dans des régions plus éloignées. Mais il y a aussi des cas où certains gens vont travailler dans les usines et qui pour les travaux de champs engagent les Tziganes comme main-d'oeuvre à bon marchés. Ce phénomène a été observé à Mirijevo. Enfin, le dernier cercle des habitats périphériques est constitué de maisons de week-end et de villas dans lesquelles on habite périodiquement.

Dans tous les villages qui sont sous l'influence de Belgrade et des entreprises industrielles dans les environs de la ville on observe des changements plus rapides. Ceci se constate non seulement dans le développement des agglomérations entièrement nouvelles mais aussi dans la transformation des villages anciens.

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THE INFLUENCE OF URBANIZATION ON TRANSFORMATION OF RURAL AREAS WITH SPECIAL REGARD TO THE ROLE OF WARSAW

Let us begin with some general remarks on the essence of the process. The literature on the subject is rather rich, as the phenomenon of urbanization has been studied in many research works, representing various branches of knowledge.

Urbanization is a permanent process, known for ages and being a result of various socio-economic factors; most generally speaking, it consists in migration of population from the countryside to the towns. It finds its reflection in various spheres of socio-economic life. The outflow of population from the villages and its endeavours to settle in the towns is a natural tendency in the development of society, however different may be the reasons of such a process. In the countries with planned economy, however, it must not be left for spontaneous development, because otherwise a balance of the whole settlement system of a given country or region may easily be upset.

As for the very term "urbanization", in the opinion of many authors (e.g. K. Dziewoński and M. Jerczyński, 1977) it is difficult to give its definition. Urbanization is a multifarious and very complex process. Besides, it is a dynamic process, varying in time and in space, and its manifestation can be observed in different sectors of socio-economic life. Therefore, when it comes to the definition, different authors point to different features as being characteristic of the phenomenon or urbanization.

There are two concepts of urbanization, to which correspond, respectively, the higher and the lower phases of the development of society (P. Rybicki, 1972). In societies on a lower stage of development urbanization takes place by means of the migration of population to the towns, as a result of which the latter grow in size and number. At the same time increase: the share of urban population in relation to the total number of population, and its spatial concentration. This process is called "horizontal" urbanization, and is measured by different indices concerning the population, its professional activity, and the way of spatial development. Thus

understood urbanization can be defined by means of certain number of indices recognized as characteristic. This makes the process fairly measurable by means of quantitative methods.

In the developed countries, in which urbanization processes are already far advanced, such an approach to this phenomenon is pointless. In this case the index of the share of urban population does not bring anything new to the matter. Instead, we shall speak of the changes in the style and standard of life, new models of behaviour, and other characteristics of this kind. This is the second definition of urbanization, chronologically more recent. Thus defined urbanization may be called, analogically to the previous one, "vertical" urbanization. As the above-mentioned characteristics are mostly qualitative, their quantitative estimation is extremely difficult.

The urbanization processes observed at present in Poland reveal characteristic features of both phases of urbanization. They both occur simultaneously and it is practically impossible to find the borderline between them. Contemporary urbanization processes are a continuation of great migration movement of the second half of the 19th century. There were many reasons of this movement, the major one being a large increase of the peasant population which brought about gradual overpopulation of the countryside. At first the peasants, who became free to change their place of living, relatively easily founds employment in developing industrial establishments. This is how the towns became the attractive places in which life was apparently easier. All this resulted in serious transformations in the contemporary socio-economic structures of the country. Urbanization and industrialization processes occurred on Polish lands simultaneously. However, slowly developing towns and industrial centres could not absorb all surpluses of rural population, which was the reason of their large-scale emigration abroad in search of work, both seasonal and permanent. It seems interesting to note that till the Ist World War emigration abroad was on the average larger than migration to the towns.

Urbanization processes caused considerable changes in the settlement network. The urban network of settlements, which used to be evenly dispersed, with the majority of towns not exceeding 5,000 inhabitants [1], began to change both as regards the size and the distribution in space. The decline of numerous small towns, which with concentration of economic activity could not find proper basis for existence, was accompanied by a rapid development of few industrial centres. Among the latter most rapidly developed the towns which had emerged on the basis of exploitation of natural resources, in particular of coal (Upper Silesia). As a result of these factors a new settlement network was formed in a pattern close to the present one. Thus the settlement network of today contains besides the

[1] K. Dziewoński, M. Jerczyński, op. cit.

remains from the feudal epoch also subsequent elements which crystallized at the end of the 19th century in consequence of the expansion of capitalism on Polish lands.

The first years after World War II were characterized by great migratory movements connected with the end of military operations and the change of the country political boundaries, reconstruction from war-time devastations, and rapid industrialization (3- and 6-year plans). Only several years later the urbanization processes attained certain stabilization so that the tendencies characteristic of the socio-economic changes in the period of the construction of socialism in Poland could be observed.

Statistical data show that up to 1974, the population of the towns rapidly increased. Most rapidly developed urban voivodships : Warsaw, Cracow, Poznań and Wrocław. From among the other voivodships, most rapid growth of population was observed in those of Gdańsk and Szczecin, while eight other voivodships, including that of Warsaw, were characterized by the outflow of population. Most urbanized were the voivodship of Katowice (78.3 per cent of the population inhabited the towns in 1974), next the voivodships of Gdańsk and Szczecin (71.8 and 68.2 per cent, respectively). Least urbanized was the voivodship of Rzeszów in which only 30 per cent of the total population were inhabitants of the towns.

During the 30 years after the war the rural population was more or less the same (16.1 million in 1946, 15.4 million in 1974). During the same period, urban population increased by 2.5 times (from 7.5 million in 1946 to 18.4 million in 1974). In global values, this means that the whole natural increase of population of the country was absorbed by the towns. For instance, in 1974 almost 280,000 people migrated from the countryside to the towns. Generally speaking, the largest increase of population was observed in medium-size towns of some 20 to 100,000 inhabitants. In 1965 the population of these towns constituted 25 per cent of the total urban population, in 1974 it reached 30 per cent. Large cities were inhabited by about 44 per cent of the total urban population and this per cent has not changed for years. At the same time the number of population living in small towns (to 10,000 inhabitants) has been decreasing.

The analysis of such data has one disadvantage : it does not take into account the change of administrative boundaries. Thus it often happens that the data compared are in fact referred to different areas. In the fifties, when there were many such changes, these situations were frequently encountered.[2] The growth of towns may take place in three ways : through

[2] In Warsaw, for instance, the change of administrative boundaries was performed in 1951 and 1957. In consequence, the area of present-day Warsaw surpasses three times the pre-war Warsaw. In result a paradoxical situation was observed that in the fifties the proportions of agricultural land considerably increased. In 1965 it constituted 37.3 per cent of the total territory, in 1975—31,0 per cent.

natural increase of urban population, migrations and the change of administrative boundaries. In 1950—1960 the latter factor was responsible for about 40 per cent of the total increase of urban population. On the other hand, the decision to incorporate new territories is usually made as a result of rapid urbanization. Also, the formation of new towns is in most cases the administrative ratification of the existing processes. Nevertheless, in drawing any comparisons, this element must also be taken into consideration.

From the above data Poland is seen as a country of accelerated urbanization. According to the information of the Central Statistical Office, by the end of 1974 54.6 per cent of the population of our country inhabited the towns. For comparison, in other European countries the level of advancement of urbanization was the following. In Europe as a whole in the towns lived over 60 per cent of the total population. Especially large index of the share of urban population had the West European (the Benelux countries, Great Britain) and Scandinavian countries (over 75 per cent of urban population). Among the seven Socialist countries, in 1970 the highest percentage of urban population had the German Democratic Republic and Czechoslovakia (73.8 and 62.4 per cent, respectively). The Soviet Union and Poland occupied the third and fourth places. It should be noted that according to the 1960 and 1950 censuses Poland occupied the third place.[3]

Investigating the urbanization processes in two following decades, S. Heřman (1975), found that the years 1960—1970 were marked by a certain decrease of its rate of development. This phenomenon is indicative not so much of the restrain of the tendencies which continued to exist, but rather of the change in their character. Therefore, the urbanization processes should no longer be discussed in relation to individual towns, but to larger settlement units. The largest transformations occur in the outward zones of great urban agglomerations, on adjoining territories and around other urban centres. On the same areas a rapid increase of nonagricultural population was observed.

In the investigation of urbanization one question was to be kept in mind : which phenomena are to be treated as real symptoms of urbanization, i.e. of urban impact on countryside and which merely express the process of modernization resulting from the world-wide processes of material and cultural progress, not necessarily of urban character or provenience. Very often those two processes are identified which extends unduly the concept of urbanization.

In the characteristics of urbanization processes and their influence on transformation of rural areas one cannot omit the problem of commuting to work. Many works, based on numerous research studies, have been written on this subject. For many students the extent of commuting to work

[3] Cf. the table in S. Heřman's work.

determines the area of direct influence of the city. The proportions and scope of commuting on a given area depend on the density of communication network and the frequency of train and bus service, on the one hand, and on the possibilities of finding a job in the city, on the other.

Commuting to work, as a symptom of urbanization, caused another, formerly unknown, phenomenon in Poland : the emergence of a bioccupational group of rural population, often called peasant-workers. They combine work on their farms with nonagricultural occupations. However, as it is not easy to combine two kinds of work of so different character at the same time, in most cases at least one of them is neglected. On the other hand, the incomes drawn from nonagricultural occupations make it possible for those part-time farmers to improve their living conditions. The largest numbers of part-time farmers are encountered on the areas undergoing industrialization, and particularly on small farms. As this group of population can hardly be supposed to disappear in the near future, rational ways of solving the problem should be found.

Another phenomenon that can be observed in Poland is a gradual increase of the number of people who, although live in the countryside, yet are engaged in nonagricultural occupations. Owing to many factors, such as mechanization of agriculture, its more rational organization, various services, nowadays an increasing number of inhabitants of the contryside are not engaged in direct agricultural production.

In effect of industrialization and urbanization processes Polish countryside begins to change its scenery. Great number of new constructions are observed, in particular around great urban agglomerations, along main transport and communication routes, and on the areas attractive from the tourist point of view. Unfortunately, most of these constructions are rather ugly, devoid of any individual, regional character. Rural architecture is still awaiting the initiatives of architects and spatial planners. In search of improvement of architecture and spatial order in the countryside, a catalogue of typical projects for the investors has been prepared. The Ministry of Administration, Local Economy and Protection of the Environment endeavours to these projects under tighter control. In 1974 it was decided to work out simplified plans of spatial development of the villages,[4] a good initiative which we are most satisfied to see. These plans were concerned with the determination of appropriate directions of building development in the countryside, and protection of agricultural lands and forests against unconsidered investments. The projects speak of concentration of the housing and services network, which would permit to equip the vil-

[4] In March 1975 the Ministry of Administration, Local Economy and Protection of the Environment organized an exhibition which showed the hitherto performed work on these plans (analysis of the current state and the plan for future management).

lages with water-supply and sewage systems and in easily accessible services and shopping centers.

During the past few years the buildings of prefabricated elements are frequently encountered in the countryside, especially on the areas of large investments and consequent shortage of traditional material. All this changes greatly the scenery of the Polish countryside.

The above-presented phenomena related to the urbanization processes are in principle of quantitative character, or else they are relatively easy to observe in the morphology of the countryside. However, apart from those, there are very many phenomena of qualitative character, such as transformations in patterns of consumption, behaviour and system of estimations, changes of cultural needs, which are also affected by the processes of urbanization and are thus treated as its symptoms. There is no doubt as to the very important role played by television as a carrier of information. Television, besides the radio, popularizes the forms of urban life, fulfills the population's needs for information and, to some extent, for the culture (the so-called higher needs), thus levelling the disproportions between different regions and diminishing the differences between the town and the countryside.

Another reason of transformation of rural areas is tourism. Every year more and more inhabitants of the towns want to rest far from the city noise. Therefore they go for the holidays to the countryside, leaving their money there, and in return expecting more comfort. In order to meet these requirements, the village must invest, because in the final account it pays.[5]

Another symptom of urbanization of the countryside, which in our country is only beginning to emerge, is the phenomenon of building of so-called "second houses". In the highly developed European countries it is now a considerable problem to find appropriate areas for these investments on a mass scale. Therefore, we should think beforehand of securing adequate land for this aim in the plans of spatial development. For it is enough to visit the Zegrze Lake, or some other areas of natural beauty nearby Warsaw, to make it clear that very soon this type of building will become a problem in our country as well.

All these quantitative and qualitative aspects characterizing the phenomenon of urbanization occur to different degrees in different regions of the country. In our considerations we are mostly interested in the influence of Warsaw on its surrounding areas. Because, as writes K. Dziewoński (1962), in his fundamental work on urbanization processes in Poland, it is very difficult to show the methods by which one could thoroughly characterize the discussed phenomenon, we will have to confine ourselves to a mere description supported by statistical data.

[5] For instance, in plans of the spatial development for about 2,000 villages provided for intensive investing, in 300 the recreational functions will be concentrated.

The voivodship of Warsaw,[6] especially in its north-eastern part, belonged to the regions of least developed urban network (the other two being the voivodships of Lublin and Białystok). The urban density here is almost three times lower than in the better developed western voivodships (of Wrocław, Poznań and Katowice). When investigating the urban network in a given region by more refined statistical methods, it can be seen that not all voivodships have a properly developed settlement network. In the case of the voivodship of Warsaw the capital city clearly dominates over the relatively poor development of smaller towns. In the voivodship of Warsaw the medium-sized towns, such as Płock, Siedlce, Ciechanów, as well as those situated within the Warsaw Metropolitan Area[7] such as: Pruszków, Otwock, and Wołomin, have rapidly developed. To some extent the development of these towns is the result of the attempts to reduce agglomeration and centralization processes, both of which were carried out in the sixties. The branches of Warsaw industrial plants, together with new establishments, were located in small towns nearby Warsaw. In the early seventies this action was abandoned as it did not bring the expected results.

The analysis of the development of Warsaw and its voivodship during the last thirty years discloses considerable disproportions in this respect. In the first period after the war the main task was the reconstruction of the destroyed capital. However, later on Warsaw continued to develop, while the development of the voivodship was much slower, with the exception of Płock in which great petrochemical works were built. In general it can be said that apart from the area under the direct influence of Warsaw Metropolitan Area (WMA), the economic development of the remaining areas is left far behind.

In 1974 the urban population constitued 37.8 per cent of the total population of the voivodship and was concentrated in 68 towns (besides Warsaw). The voivodship of Warsaw covered 9.4 per cent of the total area of Poland, but its share in the total urban population was of 5.2 per cent. On the other hand, if we treat the voivodship of Warsaw together with Warsaw itself, its urban population will make 12.9 per cent of total country.

If we observe the distribution of rural population on the area of the voivodship, we can see its great concentration in close vicinity of Warsaw, due to a large number of nonagricultural population who, living in the countryside, commute to work in the capital. This situation is also the consequence of both destruction of Warsaw and the registration restrictions

[6] In the boundaries before 1975.

[7] The idea of the Warsaw Metropolitan Area first appeared about 40 years ago and was created by the architects dealing with Warsaw. Its main theoretical assumptions were shown in the work by Jan Chmielewski and Szymon Syrkus "Functional Warsaw". By the Warsaw Metropolitan Area we understand the so-called closer suburban area of Warsaw.

introduced in the sixties in Warsaw, later on extended also to selected neighbouring towns and urban settlements.

Due to all those factors the towns and settlement units nearby Warsaw suffer from the lack of services, and their inhabitants must avail themselves to a large extent of Warsaw service centres. Many of these towns are former summer resorts which later on became dormitories of Warsaw. Only in some of them specialized functions developed, such as, for instance, health resorts (Otwock, Konstancin-Skolimów, Tworki, and others). The standard of housing as well as density per room also show the unfavourable situation of the voivodship.

In the presentation of the influence of urbanization on transformation of rural areas of the suburban zone of Warsaw much use was made of the study carried out at the Regional Planning Office of Warsaw and the voivodship by W. Gadomski and A. Bieńczyk, (1970). This study contains rich material taken both from generally available statistical sources, and from direct field inquiries (data for the year 1965). These investigations covered 648 village territories[8] in 54 gromadas[9] situated within the Warsaw Metropolitan Area.

In 1965 all towns of the Warsaw Metropolitan Area had 384,600 inhabitants. Among them 41,900 were commuters. The countryside of the WMA had 247,900 inhabitants, including 54,200 commuters. The inhabitants of the towns constituted about 60 per cent of the total population of the Warsaw Metropolitan Area (the average for Poland being 49.7 per cent). The investigations have shown that 65 per cent of the total population inhabiting the countryside are nonagricultural population, and furthermore, that 50 per cent of this nonagricultural population earned their living outside the place of permanent residence (mainly in Warsaw). Only in 33 per cent of the total amount of village territories the agricultural population was predominating. In the remaining 436 most of the population were engaged in nonagricultural occupations.

The investigations performed with respect to the proportions and structure of employment of nonagricultural population inhabiting the rural areas of the Warsaw Metropolitan Area have shown a certain territorial specialization. Generally speaking, 31.6 per cent of the population was employed in industry and handicraft, 31.9 per cent — in services,[10] and

[8] At that time a village unit (sołectwo) was the smallest unit in the countryside. It was the area under the management of a "sołtys"—head of the village. It was not an administrative unit.

[9] Until December 1972 a "gromada" was the smallest administrative unit in Poland. This division has been abandoned since January 1, 1973, with the reintroduction of communes (gminy).

[10] To the services belonged : trade, health service, education, culture, handicraft, and tourism.

36.5 per cent in the remaining branches of national economy. Detailed studies have shown that most people employed in production handicraft live in direct neighbourhood of Warsaw.

When analyzing the problem of commuting to work it was observed that also a certain number of inhabitants of Warsaw and other towns situated within the Warsaw Metropolitan Area commute to work to rural areas. This is mostly a highly-qualified staff, engaged in different specialistic establishments and in big industrial plants. The vast majority, amounting to 76 per cent of the total number of commuters, journey to work to Warsaw. In addition to that, 22 per cent commute to work on the area of their own powiat. For the majority of commuters (66.6 per cent), it took up to 45 minutes to reach Warsaw. A relatively large group (about 19 per cent) travelled to work for over an hour.

It is generally known that the proportions of commuting to work are correlated with the quality of soil and size of farms. On the area of the WMA most of the soils (59.9 per cent) are poor, of the 4th and 5th classes. Goods soils, of the 1st — 3rd classes, cover only 24.2 per cent of all arable land. Besides, most of the farms are very small. In 1965 the average size of individual farms on the investigated area was of 3.1 ha (the corresponding value for the voivodship being 5.0 ha). The size of farms was however much differentiated, from 0.9 ha (gromada of Komorów) to 7.0 ha (gromada of Ręczaje Nowe). High proportion of small farms is also responsible for the appearance of part-time farmers — the above-mentioned peasant-workers. According to the calculations performed in 1966/67, the number of peasant-workers in the Warsaw Metropolitan Area was of some 11,000. Since that time their number has considerably increased.

The character of land use is also representative of the suburban zone of a large city which is a ready market. The share of vegetables in the area of under crops was of 4.2 per cent for the Warsaw Metropolitan Area, and in the powiats of Pruszków it was twice as large, amounting to 9.6 per cent (the average for the region was 1.3 per cent). The surpluses of vegetables, greenhouse cultivations and fruits are sent to other regions of the country, and abroad.

The analysis of the standard and type of housing revealed a tendency to level the differences between the urban and rural areas. This is probably due to a high share of nonagricultural population who, although decide to live in the countryside, yet want to be provided with urban comfort of life.

The studies on the functional character of rural settlements made it possible to distinguish the settlements of different functions, such as: agricultural, dormitory, industrial, service, specialized, as well as mixed ones. In the suburban zone of Warsaw most of the rural settlements (42 per cent) performed both the agricultural and dormitory functions.

All above described phenomena, supported by numerical data,[11] reflect the urbanization process that take place in the suburban zone of Warsaw. The role and importance of the capital and of other towns of the Warsaw Metropolitan Area are the larger the closer to them is situated a given area and the better it is connected with urban centres by transport lines.

If we tried to forecast the future urbanization processes and the role played in them by Warsaw we might say that the attractive force of the capital will continue to grow in the future. This will cause a further increase of the share of urban population on the area of closer and more distant suburban zone, including the areas less urbanized so far.

Also, the phenomenon already known in the developed European countries, is likely to appear in Poland soon : depopulation of the agglomeration centre accompanied by the growth of outer settlements and increase of population in the surrounding zones. The people living there will probably choose arduous commuting to work to services of higher rank in exchange for better housing and health conditions without such disadvantages of urban life as : noise, air pollution, crowd, and the like. Undoubtedly the increase of leisure time will accelerate this process.

At present when projecting the development of Warsaw nobody speaks of a single city, but of the whole Warsaw Metropolitan Area. On the other hand, there have been discrepancies of opinions as to the development of the future settlement network of the voivodship. Should Warsaw continue to develop, leaving apart smaller centres, or else should we limit its further development in favour of other towns that would be treated as its counterbalance. Irrespectively of which of these views is going to win, one thing seeems to be beyond dispute : the development of Warsaw Area to the north. The reason is the attractiveness of the Zegrze Lake, and above all, the possibility of supply in water (Bugo-Narew). All this may cause the shift of the agglomeration centre to the north.

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[11] It was impossible to bring these data to the fore because so far no investigations of this type and detail have been performed. It seems that most difficulties arise due to the fact that the statistical data are collected according to the administrative divisions, in which the Warsaw Metropolitan Area was no treated as an individual information unit.

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URBANIZATION OF THE UPPER SILESIA AND CRACOW VOIVODSHIP COUNTRYSIDE — AND THE SOCIO-PROFESSIONAL STRATIFICATION OF POPULATION

INTRODUCTORY REMARKS

The urbanization process in contemporary Poland is exceptionally complex and varied, being carried on, moreover, against a background of a very specific character. Among the distinctive traits of this process is its high, though varying from one region to another, dynamics, manifesting itself above all in the increase of urban and non-agricultural population and in the creation of urban-industrial agglomerations. The qualitative changes occurring in this process are also very significant, and it is with them that our report will be mainly concerned. The investigated area has been limited to southern Poland, an area where both the degree of urbanization of its central part, known as the Southern Macroregion, and the transformation occurring in close connection with its economical potential, have reached a point beyond which the qualitative changes begin to prevail.

METHODOLOGY AND METHODS

The present stage in the development of urban settlement, a development of which in the socialist countries is above all a result of progress achieved in the given country's industrialization, leads up to the formation of integrated settlement complexes, such as, e.g., local production and settlement complexes, urban ensembles, urban-industrial agglomerations, and highly organized metropolitan regions. Their formative process, in which a prominent part falls to the uncontrolled, spontaneous elements, is highly complex, and this makes research fairly difficult. The degree of this complexity depends both on the successive stage of economic development at the given village, on its connections with the non-rural centre or place of employment, on the pattern of local transport network, as well as upon the impact of the traditional forms of money-earning and, finally, on the type of economy prevailing in the village intergrated into the process of urbanization.

The existing economic background, the general conditions of settlement linked with those of the geographical environment, have now but a minor importance, while the really relevant factors are the development of the transport network, the amount of money received as wages for work outside agriculture and the growing and extending links between village and town (Dobrowolska, Prochownikowa, 1971). This view, previously corroborated in research studies about the nearest and more distant hinterland of the Upper Silesian Urban Agglomeration (Rajman, 1968, 1969), can be recognized as an established regularity representative of a successive stage in the urbanization process, connected with Poland's accelerated — and yet extensive as well — industrialization. Now, national economy having entered a new developmental stage, the result, among others, of the decrease in labour supply (which had began to be felt since the mid-sixties), and the introduction of more intensive forms of increasing the national income—a greater attention should be paid to the quantitative aspects of the urbanization process, and to their influence upon rural and suburban communities.

In the analysis of the quantitative aspects of the urbanization process and their spatial forms, of great help may prove research methods derived from cybernetics and applied mathematics (e.g., Markov's chain method). Cybernetics, or strictly speaking, some of its component parts, such as the systems theory, the theory of information and communication, may be applied, for instance, to trace the potential behaviour of dynamic structures related to time processes, as well as to study the relationships between structures and their functions, providing that structural systems are to be treated as "self-regulated systems" (Klaus, 1965). Moreover, cybernetics may supply a logical matrix, permitting to confront the mental structure of the pursued theoretical work, and thus detect any gap that might occur in the reasoning but not be revealed by an ordinary geographical description. The application of cybernetics allows also for a better and more accurate definition of concepts and their interrelations, for a clear distinction between element, set, and relation, between function and argument, stimulus and reaction. On the other hand, Markov's chain method permits to consider the time dependence of the respective occurrences in the urbanization process within the system of geographical localisations, as well as to study the balance of, e.g., the achieved state of urbanization at some given stage in the socio-economic development as a statistical state within the categories of processes currently taking place in the society. Moreover, Markov's chain method can serve as basis for investigating the changes and dynamics of spatial systems (Chojnicki, 1970).

In fact, the system : urbanization — changes in rural structures, constitutes a single, integral self-regulated system, with a number of feed-backs operating in its workings (Rajman, 1972). In the discussed system,

external reality, i.e., the factors inducing and modelling the course of urbanization, have a bearing upon the formation of the given stage in the process of socio-demographic changes, and these changes in turn operate as feed-backs, affecting external reality. The above presented cybernetical construction not only permits to discern fully the mechanism of different, co-existing forms of urbanization (after S. Golachowski, 1966 : urbanization sensu stricto, suburbanization, semi-urbanization), but can also find application in the study of different phases and stages of the process of urbanization, appearing simultaneously on some given area—and of their spatial aspects.

As it has been clearly proved by an analysis of feed-backs in the system urbanization—changes in rural structures, the most relevant, from the viewpoint of socio-demographic and settlement processes, are the ties resulting from labour relations, which can be considered as endogenous set-forming forces, as they operate within an evolving system. In this conception, the set-forming function is determined by the quantity and quality of vacant posts of employment at the given industrial centre ; it must be added, too, that as far as the qualitative changes of the urbanization process with which the present report is dealing, are concerned, of great importance are the local surpluses and deficits in manpower and its qualification barrier.

When considering the employment and labour relations within the examined spatial-structural systems of urbanization, one can distinguish two fundamental types :

(a) stabile systems, in case when there is a hierarchically formed system of employment centres and places of residence of manpower ;
(b) non-stabile systems, when there is only one, usually small, labour centre and the sphere of influence exerted by it is restricted. Any new plant or factory located on such area is bound to disturb the self-regulate system (it is then the exogenous set-forming forces that are mainly at work), whereas within a stabile system such new localisation would induce only some internal shiftings in the relations between the places of employment and places of residence of manpower.

RESULT OF EMPIRIC RESEARCH

In presenting empiric case studies, our report has been limited to the area covered by Poland's Southern Macroregion, which comprises the voivodships of Katowice, Cracow—including the City of Cracow—and Opole. This planning unit holds five out of the sixteen urban-industrial agglomerations as distinguished by S. Leszczycki (1971), while how densely populated is this Region will be shown by a comparison between its percentage share in Poland's total area (11.1 per cent), and in the number of its population (23.3 per cent), as well as in its mean density (225 persons per

1 sq. km), more than a double of the average one for Poland. It should be noted, however, that the character of the three voivodships is by no means uniform, and te differences from one district to another are considerable. Beside the strongly industrialized district and centres, and the nearly two--million Upper Silesian Industrial Agglomeration, the Macroregion comprises a number of areas where the traditional economy, based on agriculture and animal breeding, has survived (this being above all the case in some districts of Cracow and Opole voivodships). Moreover, there are in the Southern Macroregion several areas specializing as tourist holiday centres and health resorts, such as, the Silesian Beskid Mts region, The Tatra Mts with the basin of Podhale, the Poprad valley, and others.

The Southern Macroregion area, with its high standard of equipment in network of technical infrastructure, plays a prominent part in the spatial lay-out of national economy, being situated as it is at the crossroads of important transport routes. This geographical situation favours the diffusion of extra-urban forms of urbanization, and the inclusion into the process of extensive rural areas.

There are two central areas where the concentration of production, population, and services is particularly high : the Katowice (and Rybnik) agglomeration, and the Cracow (and Jaworzno-Chrzanów) agglomeration. Near the eastern border a new, Tarnów agglomeration is being formed, representing a type of a strongly intergrated metropolitan region, while in the west the Opole agglomeration is evolved along the upper course of the Odra river. In the north and south of the Macroregion two other agglomerations, of Częstochowa and Bielsko-Biała respectively, are grouped, each with a different genetic and functional structure, and with a different spatial lay-out. The system of the above-listed key areas are interconnected along the technical-infrastructure arteries, by a number of belts with intensified urbanization, an instance of the spatial integration of urban-industrial centres and the zones of their influence. Within the reach of the urbanized belts new forms of settlement originate, with a tendency to spatial expansion, which at the same time are representative of the qualitative changes occurring within the urbanization process itself.

Among the exponents of the standard of urbanization achieved in the Southern Macroregion, is the per cent of population in towns (62.5 per cent of the whole population), higher than the mean value on the national scale, and a very high index of income sources outside agriculture (84.1 per cent of the over-all figure). Further exponents of this process are as follows : a growing spatial expansion of the towns, functional integration and specialization of most settlement-and-production units, as well as the evolution of constantly growing urbanized zones. As a result of the expansion of urbanization phenomena in the rural areas of Silesia and Cracow voivodships, one can note there, within the span of the last fifteen years,

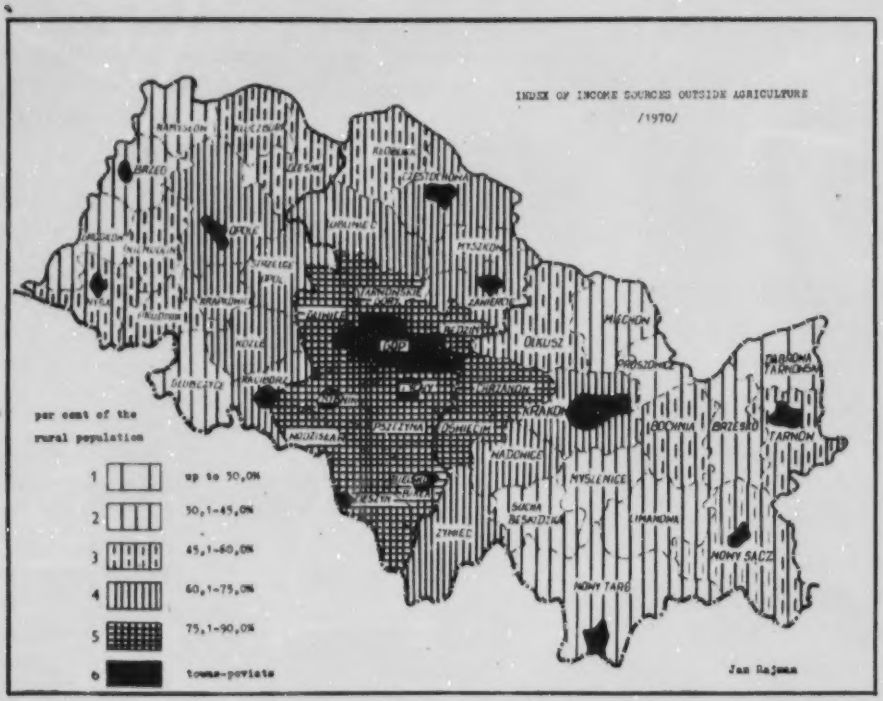

Fig. 1. Index of income sources outside agriculture (1970) per cent of the rural population.

a tendency, contrary to that noted on an national scale, to an increase of the rural population (28 per mille in Katowice voivodship, 15 per mille in Cracow voivodship, and 30 per mille in Opole voivodship), which, however, is distincly lower than that of the natural increase. The rate of this increase calculated for each separate district, was a derivative of the rural population urbanization standard, while a decrease in absolute numbers of the rural population was recorded in 5 districts.

An integral feature of the current demographic and social developments in Silesia and Cracow countryside is the growing per cent of non-agricultural population, along with a progressing decrease in the population getting their income from agriculture. This decrease is partly due to a further flow of rural population to towns and cities, a fact particularly manifested in the villages of Cracow voivodship. And though, admittedly, after 1960 the growth of non-agricultural population in the country has been slower than that recorded in the 1950—60 decade, it remains still much ahead of the decrease in agricultural population. In fact, it is now not only the former agriculturalists who are growingly taking jobs outside

agriculture, in most cases going through an intermediate stage of "peasant--workers" ; the process is further intensified by the village youth taking on non-agricultural jobs. This can be particularly well observed in the villages of Cracow voivodship where the non-agricultural population increase index is more than twice higher than the index of agricultural population decrease.

1960 = 100

Voivodship (rural areas)	agricultural population	non-agricultural population
Katowice	74.7	127.8
Cracow	78.5	150.0
Opole	82.7	130.5

The correlation between the regional indices of the increase of non--agricultural population (x) and the decrease in agricultural population (y) was additionally checked upon by means of the correlation calculus (for each voivodship, calculated for the respective districts), which yielded the following r_{xy} values ; for the decade 1960—1970 : 0.412 for Katowice voivodship, -0.463 for Cracow voivodship, and 0.234 for Opole voivodship. The negative value of r_{xy} coefficient for Cracow rural population indicates that in this particular region the urbanization process has followed a different course. Considering the region of Cracow as a whole, one notices a continuous outflow of the population, of young people mainly, from villages to towns, an outflow running parallel to the transformations which take place in the socio-professional structure among the villagers who stay behind in the country. In the rural districts, and more particularly in those situated in the mountain region, less closely connected with the metropolitan Cracow centre and with the urbanized zone in the western parts of the voivodship, the indices of increase in non-agricultural population are four times as high as those of decrease in agricultural population, which shows that the two transformation processes are mutually superimposed.

Another characteristic trait of the relation : urbanization—changes in village structures, at the same time reflecting the stage of urbanization achieved in the villages of Katowice, Cracow, and Opole voivodships, is the spatial differentiation in the percentage of biprofessional population. Here it should be stressed that at the present stage, the major part of peasant--workers treat their farming activities as an additional, extra work, not as their principal job. The per cent of this group, so manifestly affected by the process of urbanization (Dobrowolska, 1963 ; Simić, 1973), as set against the total number of professionally active inhabitants, oscillates, in the villages of Katowice voivodship, from 3.5 per cent (Rybnik district) to 20.5 per cent (Zawiercie district) ; in the villages of Cracow voivodship, from 4.6 per cent (Proszowice district) to 16.5 per cent (Wadowice district) ;

and, in the villages of Opole voivodship, from 4.7 per cent (Grodków district) to 14.2 per cent (Opole district). Very significant is, moreover, the low rate of increase of this social group when compared with 1960, which is particularly striking in the most urbanized districts of Katowice voivodship.

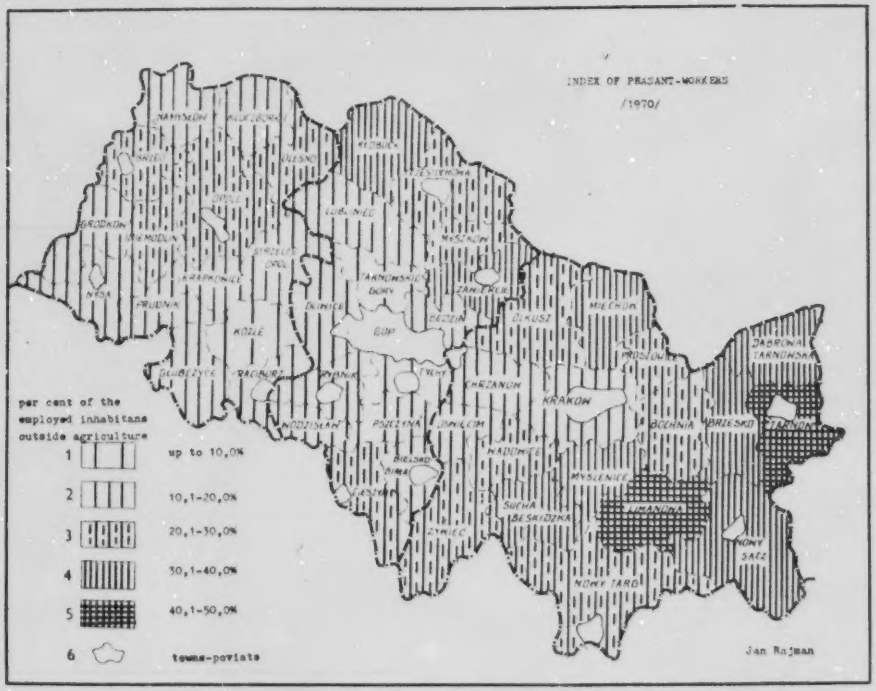

Fig. 2. Index of peasant-workers (1970) as a percentage of the employed inhabitants outside agriculture.

It seems self-evident that the increase in number of the part-time farmers' group is a factor stimulating the urbanisation processes in villages. Without entering into the complex and varied problem of the social and economic role performed by this group in the process of agricultural and extra-rural production, it should be recognized as an important carrier of technical progress in rural areas (Rambaud, 1974), as well as an exponent of the stage achieved in village urbanization. We shall equally leave aside considerations relating to the formative factors of this group, limiting ourselves to the statement that the per cent of part-time farmers in the over-all number of the village people employed outside agriculture, is in the Southern Macroregion in inverse proportion to the achieved phase of urbanization (with the exception, however, of districts overwhelmingly

agricultural, not susceptible to urbanization, as well as of districts with a still high role of agriculture in their economic structure).

In fact, in the cybernetic system : urbanization—transformations of rural structure, the positive-type feed-backs operate only up to a certain *point, which marks the stage of urbanization attainable under definite* environmental and socio-economic conditions. Obviously, in the mountain regions, where the predominant kind of occupation is crop growing and animal breeding, where urban network is sparse and the number of local centres of non-agricultural employment in adequate, the situation is bound to be different from that in the industrialized districts of the Upper Silesian Coal Basin and its immediate surroundings. When the threshold point is exceeded, there begin operating in the system, feed-backs conducive not so much to quantitative changes (increase in the per cent of peasant-workers), as to qualitative ones. The outcome is the steadily growing number of villagers professionally engaged outside agriculture, while the per cent of part-time farming population groups stays at an approximately even—not very high any more—level. This regularity is confirmed by the statistical indices for the districts, which provide, as it were, a synthetic picture of the superimposed phases of the urbanization process in the local communities. These qualitative changes are particularly evident in the most industrialized districts of the Southern Macroregion, this again testifying to the interdependences existing between the processes of industrialization and urbanization, as pointed out in previous publications on the subject (Dobrowolska, 1959, Dziewoński, 1962).

In rural areas directly encircling the Upper Silesian Industrial District the relation between purely agricultural households, households with mixed income sources, and households of those employed outside agriculture, was 1 : 11.7 : 2.56. In the rural belt surrounding the industrial town of Bielsko-Biała this proportion was 1 : 10.4 : 1.29, while in the Rybnik Coal Basin 1 : 17.2 : 1.65. Contrasting with the above, in the mountain districts of Cracow voivodship, the corresponding proportion was 1 : 1.40 : 0.02, while in the rural periphery of the City of Cracow 1 : 3.4 : 0.12. The comparison between the respective shares of the three main types of households in the villages of Silesia and Cracow voivodship, shows a marked lack of uniformity in achieving the successive stages in the process of urban transformation, which is due not only to the different degree of attraction presented by the local town labour markets, but also to the preserved economic structure, which in the less industrialized areas is a leading factor in the whole process of transformation.

The role of traditional agricultural activities in the economic structure of the Southern Macroregion can be seen, among others, by the percentage share of the peasant-workers group, a category treating work outside agriculture as an additional, not principal occupation. Thus, while in the

districts of Katowice and Opole voivodships this category nowhere goes beyond 1 per cent in relation to the total number of the professionally active, in Cracow voivodship its share reaches up to 2.3—2.4 per cent in the mountain districts of Nowy Targ and Sucha, not falling below 1 per cent anywhere apart from the five industrialized districts.

The continuous technological progress we are now witnessing is bound to bring about certain—as yet hardly predictable—changes in social structure. The urbanizing villages of Silesian and Cracow voivodships have already entered the stage of qualitative changes which in a great many areas are running parallel to the quantitative ones.

The regularity of the spatial systems in the social division of labour and rural urbanization, as established by field investigations, is linked up with the commuting of rural population, and it is easy to trace its growing importance as one comes closer to the industrial centre, as well as how closely related is the formation of new settlement units to the network of local transport. This regularity, however, is often disturbed by local factors, the endogenous factors of semi-urbanization of rural areas. Another deforming element is the growing competition at the non-rural labour market, and this during the initial stage makes the different urbanized zones mutually overlapping (Rajman, 1969). In some regions of the investigated area there appear gravitation patterns reversed in relation to those previously formed, this making it necessary to verify the methods of research evolved during over a dozen years of experimenting.

With the development of the qualitative aspects of urbanization new features begin evolving within the settlement units previously formed, and these features prompt villagers to seek specialization in a skilled work outside agriculture. These changes make ties between the different settlement units become more important than the previously studied connections between the industrial centre and its hinterland. In re-constructing the mechanism of this—certainly new—phase in the urbanization process of the rural area, of great relevance may be the application of system analysis.

The processes of industrialization and urbanization which had so strong an impact on rural population, induced a change in the value system, this revaluation extending beyond the social patterns for earning one's life, but embracing the fields of material and intellectual culture as well. This can be seen, for instance, in the young villagers striving towards professional education and skilled work, as well as in the tendency, discernible not only in suburban zones, to have a house to live in equipped according to up-to-date standards. A synthetic, interesting study on the urbanization process in the villages of Opole voivodship was recently presented by Z. Mikołajewicz (1973); a number of smaller studies has been also published about the steadily growing importance of the spatial forms of urbanization in the rural areas of Katowice and Cracow voivodships.

The current achievements in science and technology call for skilled labour also in the country, and this brings about a growing demand for persons with completed secondary education, and even for college graduates. This stage in urbanization of rural areas, in its qualitative aspects markedly differing from the previous ones, while not extending to every group of rural community, creates—mainly through the division of labour and its growing specialization—some new professional groups. The recent research carried out by A. Krakowska (1975) has provided another proof that the process of specialization in the villagers' employment structure becomes more intense and extensive when there are some new industrial investments, as it has been the case, for instance, with the Rybnik Coal Basin, where the social and economic background had still earlier been subjected to a thorough transformation. On the other hand, however, one must not underestimate the role performed by the old works and factories, whose demand for skilled labour is heightened with the introduction of the new technological achievements to the process of production.

When analysing this stage in the urbanization process of the rural-urban settlement units, one should pay special attention to the formative process of the skilled workers which is becoming rural areas a serious social and cultural force. The increasing professional urbanization of rural areas is reflected in the growing share of skilled workers (Rajman, 1968, Krakowska, 1975), whose specialized training had been effected to meet the requirements of their local or town employers. The most common type encountered in the villages of Opole, Katowice, and Cracow voivodships, are workers who had acquired their skills by long term professional work in industry. Among those who have formal qualification graduated from lower-grade technical schools prevail. The percentage share of this professional category among villagers over 15 years oscillates from 11.2 per cent in Cracow voivodship to 16.0 per cent in Katowice voivodship, the differences from one district to another reaching from 7.5 per cent in Dąbrowa Tarnowska district against 22.5 per cent in Tychy district. A closer analysis of indices relating to the professional training of rural population reveals a strict connection with the respective districts' standard of industrialization and economic urbanization, which becomes obvious if one considers that in most cases the villagers do their "skilled training" with some non-rural job in view.

The percentage share of villagers (above 15) who have completed secondary or higher education, is not so varied, oscillating from 5.7 per cent in Opole voivodship, to 7.4 per cent in Katowice voivodship. It should be noted, however, that the per cent of degree holders in the Macroregion is very low in rural areas (0.5 per cent in Cracow and Opole voivodships, 0.6 per cent in Katowice voivodship). The share of this most professionally specialized group of rural population does not exceed 1 per cent in any of

the districts (always remembering that this calculation embraces only the part of the population over 15 years).

The number of villagers with secondary education is more varying in the different districts (from 4.5 per cent in the agricultural-industrial district of Prudnik, to 10.5 per cent in the mining and industrial district of Tychy). This group is more closely linked with the economic profile of the particular districts, performing additionally the function of an organizational and servicing factor for an extensive social and cultural infrastructure in country life. Together with the group of skilled workers and degree-holding specialists, this class provides, along with other socio-professional features, a good criterion for assessing the quality of urbanization of rural areas.

The results of our investigation, of which the most significant have been summarily recorded in the present report, have shown that the countryside of South Poland, or, more accurately, of Poland's Southern Macroregion, displays features of a fairly developed transformation process. The specific traits of the latter, its characteristic symptoms and their correlation with the urban labour markets, permit to classify them as being typical of urbanized rural areas. The process, however, is not uniform in the whole Macroregion under discussion, and this spatial differentiation makes it possible to distinguish several successive stages in its development, which depend both on the force of attraction of the urban centres, and on the economic structure surviving in rural areas.

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THE INFLUENCE OF URBANIZATION ON THE STRUCTURAL CHANGES OF RURAL POPULATION IN THE SR OF MACEDONIA

The urbanization process within the Socialist Republic of Macedonia became more intensive only after the Second World War, and the areal expansion of this urbanization has only been evident during the last 10—15 years. Its effect on the transformation of the geographic area of Macedonia is so strong that some regions and many towns can hardly be recognized as the same places any more. SR Macedonia, in comparison with the other republics of Yugoslavia, can now be perceived as one of the most urbanized.

Keeping in mind the social, economic, political and cultural conditions of Macedonia during the Turkish governing as well as between the two world wars (which is not the topic of this report), completely different qualitative socio-economic transformations have resulted from the dynamic development of urbanization during the relatively short period under the conditions of our self-governing socialist society.

From a significantly agricultural country before the war,—when it had neither independence nor selfgovernment, when the socio-geographic and economic conditions reflected its position of that time, i.e., when industrialization was insignificant and the transportation network underdeveloped, when a rural and illiterate population prevailed and the urban population was limited in its function, when the natural resources and potentials were unsufficiently utilized, etc.—SR Macedonia after the Second Worl War underwent such vast socio-economic, i.e. geographic, transformations that they really represent phenomena unto themselves.

Precisely because of that, urbanization has played a special role in this complete transformation and it has caused a variety of socio-geographic consequences, which is in fact the topic of this report.

More precisely, the qualitative reflection of the urbanization on the central towns will not be discussed, but rather the effects of the areal expansion of urbanization on the rural environment, or more precisely, the structural modifications of the rural population during the process of urbanization. We fell that this topic raises a variety of problems which have to be studied and solved, and represents, as well, a conceptually modern and aplicable point of view.

In SR Macedonia, industrialization and urbanization have caused significant and obvious spatial differentiation between the urbanized places and zones and the rural areas. In the process, the factor of urbanization dominates and its rate of development is directly or indirectly reflected in the transformations of some demographic elements of the rural population. In this respect, in areas where the contacts between central places and rural communities are close and direct, urbanization has stronger effects on the structural modifications of the rural population, which constitutes an obvious indicator of the modern transformation of the agricultural areas. In this way, the socio-economic differences between the rural and urban populations decrease. With the dispersion of some secondary and tertiary activities into the wider gravity zones of the central places, these differences will continue to decrease and within some areas, a higher degree of areal expansion of urbanization can be expected.

However, in other areas, where the natural environment is less conducive to development and the central places are lagging behind functionally, the process of depopulation and "deagrarization" occurs and results in various structural changes of the rural population. Within such zones, the urban centres attract the rural population, but it seems that they play a role of transition points in the migration of the population from the rural communities to the functionally stronger urban centers. Because of this, the role of smaller towns in the spatial expansion of urbanization is limited to, for example, daily movements (commuting) of the labour force, and the establishment of mixed households as indices of the effects of urbanization on the villages, the degree of exchange of goods, the efficient utilization of the secondary and tertiary activities, etc.

So, in accordance with the above facts, within the area where the central places represent larger urban agglomerations in which numerous functions are accumulated, especially the industrial centres such as Skopje, Tetovo, Strumica, and others, urbanization has even stronger influence on the villages ; the rural population is more stable in the agricultural areas ; and the modifications of some demographic elements are different. This is the first urban-rural category.

Another category is represented by the areas where larger urban centers exist, as, for example, Titov Veles, Prilep, Štip, etc., which particularly feel the stresses of immigration, representing in this way a special process of transformation involving different changes in the rural demographic structure.

The third category includes those areas where smaller urban agglomerations serve as the central places, and are functionally underdeveloped and less influencial on the direct gravitational zone, as, for example, Kratovo, Kriva Palanka, Brod, etc. The areal expansion of urbanization here is not only limited, but the more rapid process of depopulation and "de-

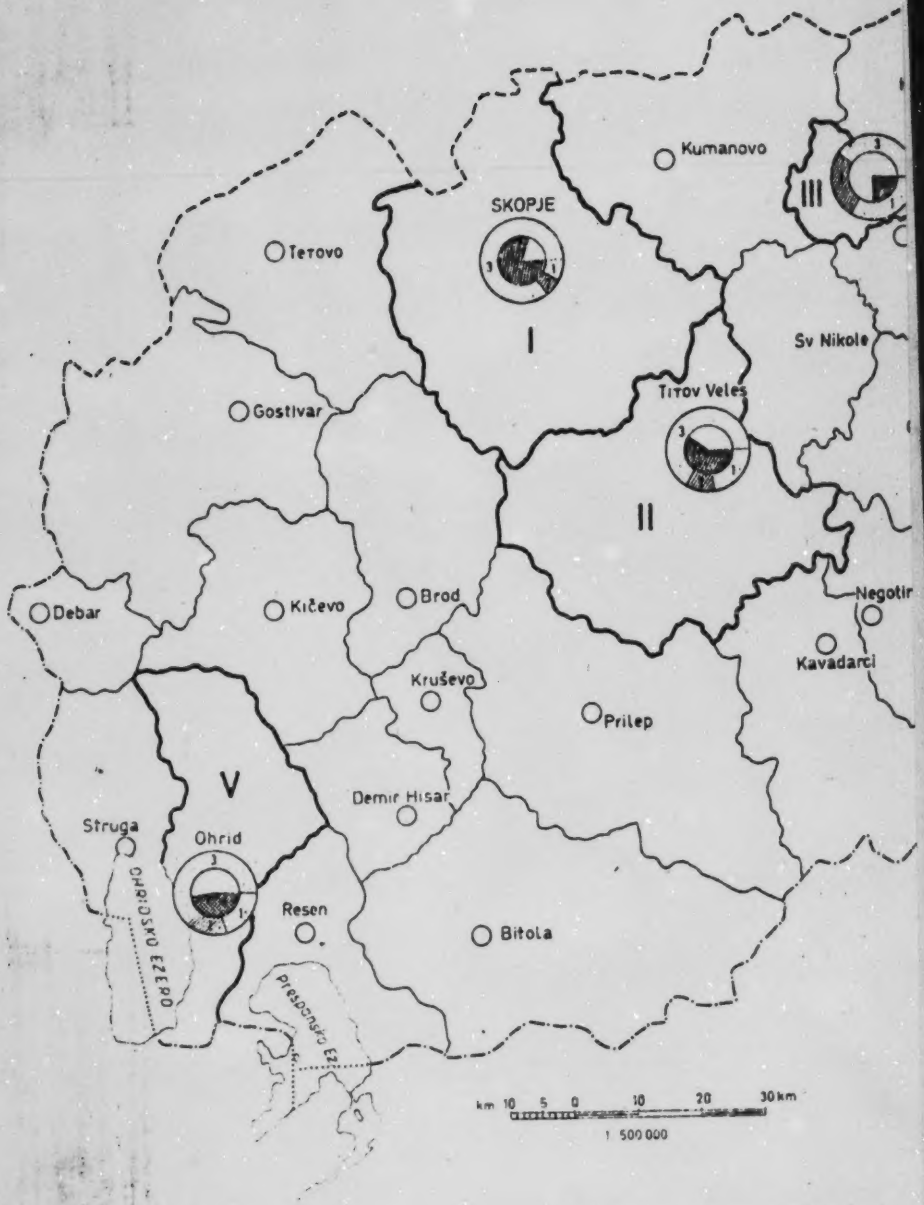

Fig. 1. Urbanization in Macedonia

I. AN AREA WITH A HIGH DEGREE OF URBANIZATION

II. AN AREA WITH A DEVELOPED CENTRAL PLACE BUT WITH A LIMITED SPACE SPREADING OF URBANIZATION

III. AN AREA WITH THE MOST LIMITED DIMENSIONS OF URBANIZATION

IV. AN AREA WITH A SMALL CENTRAL PLACE BUT OF AN ACTIVE URBANIZATION SPREADING

V SPESIFIC TOURISTIC AREA WITH BROADER URBANIZATION SPREADING

agrarization" develops, resulting accordingly in specific demographic transformations of the rural population.

The occurrence of the fourth category in the process of urbanization is very interesting. In some areas where the urban population is small and where in the last ten years the rural population has not decreased much, but keeping in mind the natural increase and migration movements, the population balance is not clearly active, as for example, the areas of Vinica, Gevgelija, Radoviš, etc. Here the rural population is nearly constant because the conditions for agricultural development are quite convenient and agriculture is profitable, while the expansion of urbanization has a different character, i.e., it expands within the villages themselves without much influence from towns, and causes different changes in the demographic structure.

In this sense, some examples will be used to prove that in SR Macedonia some specific, different, and even from the theoretical point of view interesting transformations occur in the process of urbanization, especially in the demographic structure.

As an example of the first category of areas, where the expansion of urbanization has reached high degree, we would mention Skopje Basin where with a total population of more than 400,000, or, according to data from the 1971 census, 23.6 per cent of the total population of Macedonia, there are 126 communities, of which 124 are villages.

We fell that it is important to describe the conditions which have caused this high degree of urbanization first, and then its implications in terms of the structure of the rural population. In fact, the largest town of the Republic—Skopje—lies in the region, which is really the largest polarized urban nucleus. The town itself, with its developed functions, influences its immediate surroundings, but also has a strong gravity power within a far wider area; i.e., it centralizes the whole of Macedonia and has interregional importance. If the immediate surroundings are studied, it can be concluded that the spatial distribution of villages is advantageous, especially in relation to the central place—Skopje—which is really an essential condition in the expansion of urbanization into the villages. So, for example, out of 124 villages, 53—with greater concentration of the rural population (comprising 50 per cent) within the valley—are located on the plain, while only 20 per cent are mountain villages and the rest are situated on hills with relatively convenient locations. Within the short distance of 10 km from Skopje lie 72 villages, or 60 per cent of the total rural population of this region. Taking into account the transportation network, out of 124 villages 60 have very good locations: 20 of them are located on the main roads, and 60 are not more than 5 km away from a main road. With a total concentration of 55,770 inhabitants, they constitute 73.6 per cent of the total rural population of this region.

From the above data one may clearly conclude that geographical contacts between the urban centre and rural settlements are very favourable, which means that the conditions for areal expansion of urbanization are also favourable. This can be substantiated through the census data.

According to the 1971 data, the rural population of the Skopje area consists of 75,798 inhabitants, or 9 per cent of the total rural population of the Republic. As Skopje is located here and as it is the most attractive immigration place, a decrease in number of the rural population could be expected, but this is not a case. Just because of the areal expansion of urbanization, the rural population shows some stability in its agricultural areas ; thus in comparison with the data from 1961, the total number of the rural population increased by 4 per cent.

The effects of urbanization can be also seen in the structure of the rural households. For example, out of a total of 12,998 households, 5,402, or 41.5 per cent already represented mixed households, which means that a large sector of the rural population being engaged in non-agricultural activities, is commuting daily to Skopje. On the average, each rural household consists of about 6 members, which is further evidence that the young people do not emigrate, i.e. that these households in the process of urbanization represent relatively good working units. This can be substantiated also by the fact that elementary schools (grades 1—8) have been established in many villages, and that a certain portion of the work force is engaged in non-agricultural activities but lives in the villages.

The age structure of the rural population of this area also corresponds to the high degree of urbanization, emphasizing in this way the above facts. For example, out of the total number of inhabitants, 28,534, or 39 per cent, belong to the age group of 14 years or less, 40,112 or 55 per cent to the age group of 15 to 64 years, while the rest, 4,312 or 6 per cent belong to the age group of 65 years and over.

So, keeping in mind the above, one can see that the young population, with the highest working capability prevails, which in both cases means a very favourable population structure. However, although the highest percentage falls in the age group of 15—64 years, the active rural population in this area as in nearly all other regions of Macedonia decreased, i.e. from 1961 to 1971 by 21 per cent, i.e. from 26,204 to 20,584 people. From 1961 to 1971 the number of people employed in primary activities also decreased by 14.7 per cent, i.e. from 32,125 to 24,566, because of the emigration of active people, but more importantly because of the creating of mixed households, i.e. there is a structural shift of the active rural population from primary to other activities.

The second category of areas, in which the spatial expansion of urbanization is not very efficient, despite the presence of a relatively large central place, will be represented by the Titov Veles area, which consists of

88 villages with a total of 24,271 inhabitants. This commune is the fourth largest in size of the 30 communes in the Republic, while for population density it is only 18th largest. Titov Veles is not centrally located in relation to the population of its area, while, because of the natural conditions the villages, as far as elevation above sea level, transportation network, and distance to the central place are concerned, are not as favourably distributed as in the case presented above. For example, out of 88 villages, only 11 are located on a plain ; only 16 are less than 10 km away from the central place ; while 43 are located over 20 km from Titov Veles, and 10 are even farther than 40 km away. On the other hand, the rural zone of Titov Veles is economically passive, while the town itself is one of the most significant immigration place within the Republic. Its population from 1961 to 1971 increased by 9,417 inhabitants, or 34.7 per cent, the significant part of which immigrated from the villages within the commune. Titov Veles, although functionally well developed, plays an insignificant role in the areal expansion of urbanization, and lags well behind Skopje because of the above-mentioned facts.

In contrast to the Skopje area, the rural population in this area decreased more than in any other commune within the Republic. So, from 1961 to 1971, the total rural population decreased from 30,723 to 24,271 inhabitants, i.e. by a difference of 6,452 inhabitants or 21 per cent. Essential transformations occurred, however, in the structure of the population. In 1961, the rural population prevailed and constituted 53.1 per cent of the total population, while in 1971 the urban population prevailed with 60.1 per cent of the total. In 1948, only 29.8 per cent of the population was urban, while 70.2 per cent was rural.

In this area, the number of rural households also decreased, from 5,964 in 1961 to 5,279 in 1971, which is not very favourable for an agricultural zone. The average number of members within a household also decreased from 5.1 in 1961 to 4.6 in 1971, In this way, the working efficiency of the households as the basic working unit in the agricultural prodution decreased. Because of the lack of influence of urbanization, the migration from villages to towns, especially of the active and young people, the rural households were left with a small number of people of a relatively old age. So, according to our field inquiries in 1966, 1,383 households, i.e. 27.8 per cent of the total number of household within the commune had only 1—3 members.

Because of the above mentioned facts, the age structure of the population has changed ; i.e., the number of people in the young and mature age group is decreasing because of emigration, which means that there is a lack of stability within the agricultural area, in contrast to the case of the Skopje area, while the oldest age group has increased in number. For example, from 1961 to 1966, the age group of 0—14 decreased by

2,861 inhabitants, or 24.4 per cent ; the age group of 15—64 decreased by 3,633, or 20.9 per cent ; while the age group of 65 years and more increased by 237 inhabitants, or 12.2 per cent.

With respect to the age and sex structure, as well as the decrease in the natural growth rate of the population, etc., all of which reflect the effects of the urbanization process, the literacy rate of the population is not satisfactory. For example, in 1961 about 50 per cent of the total rural population above 10 years of age was illiterate, while in 1966, the rate was 31.1 per cent. In 1966, 90 per cent of the population had completed only four years of primary school.

As a result of the various changes in the demographic structure of the population as well as of the depopulation processes, the number of inhabitants actively engaged in primary activities decreased from 11,243 inhabitants in 1961 to 9,915 in 1971, or by about 11 per cent.

The third category covers those areas where the central places are very small, the rural population prevails, and the areal expansion of urbanization is most limited, all of which naturally results in a different structure of the rural population. The Kratovo area which is situated on the south-eastern side of Osogovo Mountains is taken as an example. It consists of 30 rural settlements with a total of 11,352 inhabitants, while the population of the central place Kratovo amounts to only 3,771.

In fact, the areal expansion of urbanization here is not satisfactory for many reasons. First of all, this area has very limited contacts with other areas because of a lack of main communication lines ; the central place is not functionally developed enough and as such, it cannot play any major role in the process of the urbanization of its direct surroundings ; and what is most important and very characteristic, the villages not only are located in the mountainous zone, but also are of dispersed type, which means that conditions are not conducive for urbanization. More precisely, all of the villages in this area situated in mountains and hills ; 10 being located over 1,000 m above sea level, and most of them being of dispersed character. The villages with regard to population, are not large, i.e. out of the 30, only 6 have more than 500 inhabitants, while 14 less than 300 inhabitants and none of them has more than 2 000 inhabitants.

As has been mentioned, the rural population prevails in this region, but shows a tendency toward a decrease because of emigration. A large part of the rural population emigrates to other regions. So, for example, from 1953 to 1971 the rural population decreased by 20 per cent, i.e., from 14,187 to 11,352 inhabitants. In 1971, 24.9 per cent of the population was urban, while 75.1 per cent was rural, whereas in 1961 the rural population amounted to 84.8 per cent of the total.

The number of rural households from 1961 to 1971 did not show a tendency toward an increase, i.e., it increased by only 122 households in

30 populated places. However, the number of members per household decreased significantly, i.e. from 6.4 members in 1961 to 5.1 members in 1971, which means that the households as production units are weakening. The age structure of the household members is also not satisfactory with regard to the reproduction of the population, nor to the decreasing ratio of the active to the non-active population.

The fourth category covers the areas where the central places are small, but where the increase of both the urban and the rural populations can be noticed, and were the process of the urbanization has a specific character. Such is the area of Gevgelija, which is situated in the far south of Macedonia on the Vardar river. It comprised 32 villages with a total of 17,848 inhabitants, while in the central place—Gevgelija—there are 9,410 inhabitants.

This is a typical area in which the process of the expansion of urbanization develops in two ways: under the influence of the central place, as well as by the independent growth of some rural settlements situated mainly on a plain. This phenomenon is closely connected with the development of agriculture, since, because of the sub-Mediterranean climate, the cultivation of intensive crops is sufficiently profitable. The income obtained is invested in the improvement of the settlements, i.e. in houses, and this process is enhanced by the main road ("Brotherhood and Solidarity") and the main railway line which leads along the Vardar river, enabling easy contacts of this developed rural area with much larger areas where the products are taken to be sold.

Because of the above-mentioned reasons, the rural population, especially in the lowland areas, is stabilized in relation to its agricultural areas, and as a whole it shows an increase from 1961 to 1971 of 4.5 per cent, i.e. from 17,087 to 18,848 inhabitants. Out of the total number of villages, 22 are situated in flat areas, while only 7 are in the mountains. The rural population in the first group of villages amounts to 14,740 inhabitants, or 83.1 per cent, which means that the conditions for urbanization are quite satisfactory. The number of rural households also increases, i.e. from 1961 to 1971 it increased by 8.2 per cent, or from 3,904 to 4,562 households.

An example of a self-urbanized village is the settlement of Bogdanci, which from 1953 to 1971 increased in population from 2,951 to 4,137 inhabitants, i.e. from 837 to 1, 103 honuseholds. Te people of Bogdanci cultivate vegetables, but at the same time they are engaged in the secondary and tertiary groups of activities. The settlement has been urbanized and its physiognomy has changed significantly. It can be considered an agrcultural settlement of a higher type which has taken on an urban character; thus it is becoming a secondary urban centre in this area.

The Ohrid area particularly should be reviewed because of its specific function as a tourist center. This area, in fact the commune of Ohrid,

covers the Ohrid-Struga basin, including 56 villages with a total of 27,667 inhabitants. The central place is Ohrid, which in 1971 had 26,370 inhabitants.

In this area the areal expansion of urbanization developed to a great extent, especially in the flatter rural zones, for many reasons. The main reason is the specific tourist function of this region, in which lake Ohrid dominates as the natural recreational attraction, and in which the rich antropogenic sites bear witness to the fact that Ohrid and its surroundings have had a very important cultural-educational history. On the other hand, although the area is located in the far south-western part of Macedonia, it is well connected with other places because of the asphalt roads leading to this region. Tourism naturally helps the fast and more efficient areal expansion of urbanization, which really represents a specific case in the Republic. Ohrid attracts different types of tourists, from various urban centres within the country and from outside, and their presence and stay especially along the lake shores and in the flat areas, specifically enhances the urban transformation of these areas. Another particular characteristics of this area is the investment of private income by people working abroad into the construction of new houses in the villages and of infrastructure, which is of course reflected in the standard of living and at the same time represents an important index of urbanization.

Within the period from 1961 to 1971, the ratio of the urban and rural population changed significantly there. So, for example, in 1961, the rural population prevailed with 65.1 per cent, i.e. 30,803 people, while the urban amounted only to 34.9 per cent, i.e. 16,492 people. In 1971, the rural population constituted 51.2 per cent of the total, while the urban, 48.8 per cent ; or more precisely, the rural population dwindled to 27,667 inhabitants, while the urban grew to 26,370 inhabitants. Thus the urban population increased by 59.9 per cent, while the rural decreased by 10.2 per cent. The decrease of the rural population resulted from the emigration to the central place as well as to the other countries, where they have gone to work. So, for example, in 1971, 3,761 people from this area were working abroad, which is not a small number, at least in comparison with other regions of the Republic. However, there are some villages where the population did not decrease, as for example Lakočerej, situated close to the town and Peštani, on the lake shore, which has been functionally transformed by tourism.

On the contrary, the number of households increased, from 5,713 in 1961 to 6,095 in 1975. It is very characteristic, however, that the number of people per household decreased, i.e. from 5.4 in 1961 to 4.5 in 1971, which could be considered a result of the process of urbanization.

In all villages, which was not the case before, mixed households exist, i.e. households in which the income is not drawn only from agricul-

tural activity. For example, 23.2 per cent of total employed population belongs to the category of mixed sources of income. This can be substantiated also by the significant number of people employed outside the rural settlements. For example, about 30 per cent of the total number of employed people work outside the villages, which means that a significant part of the active rural population takes part in the daily movements (commuting) of the labour force, while other work in non-agricultural activities abroad. Such structure of the households, as well as the types of employment, have naturally a significant effect on the areal expansion of urbanization within this region.

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SOCIO-AGRARIAN CHANGES IN THE OHRID BASIN UNDER THE INFLUENCE OF URBANIZATION AND THE DEVELOPMENT OF TOURISM

Along with the general socio-economic processes going on in the country, the two urban centres Ohrid and Struga play a significant role in the socio-economic transformations of the rural environment in the Ohrid Basin. As a result of expansion, they have extended their influence to the area around the basin, thus creating relative gravitational zones of influence. In order to fulfill that function, they have first to be transformed. But, it is remarkable that, as a result of many factors in the postwar period, they have developed along different lines. Ohrid, having an older tradition, has shown monre dynamics in its development than Struga, which joined the postwar currents of development later on.

In the functional development of these two towns the structural changes in population are of great importance similarly as the development of secondary and tertiary activities, which have contributed to the reduction of their self-sufficiency in agricultural products and consequently brought about a greater dependence on the rural environment. Therefore it is a significant factor in transforming the structure of the agricultural production, which has become to be more market-oriented and strives to satisfy its requirements. Considered from that aspect, Ohrid underwent several major changes, and as a result, its influence is felt on both its immediate and extended surroundings. Ohrid not only increased its population by over 60 per cent over a period of about 10 years, but also several significant structural changes in its population took place. In the period from 1961 to 1971 the rate of agricultural population decreased there from 16 per cent to 8 per cent, while at the same time the industrial population increased three times and the population employed in trade and hotels doubled. Simultaneously, the number of agricultural households decreased three times, i.e. from 11 per cent to 4 per cent, and the mixed ones from 22 per cent to 5 per cent. As mentioned before, Struga's development as compared to Ohrid is slower, which is also noticeable from the considerably smaller changes in the rate of the agricultural population. The latter decreased over a period of 10 years from 18 per cent to 12 per cent as a re-

sult of the slower industrial development of the town. In industry, for example, one-half of Ohrid's labour force (1100 workers) is employed there while in trade and hotels only one-fourth, i.e. 270 persons as opposed to the 930 persons in Ohrid. As a result of those differences in the development of these urban centres, the capability for absorbing the surplus population from the rural environment as well as its transformation will differ.

An additional contribution to the influence of urbanization on the socio-agrarian changes in the rural environment is tourism, which has played a considerable role. Its direct expression is employment in hotels, restaurants organization of travels and private accomodations for tourists ; a direct influence is expressed through the increased sale of agricultural products during the tourist season, as well as through the adaptation of the agricultural production to the requirements of the market.

The influence of the urban centres and the development of tourism is also evident in the transformation of the rural environment ; as exemplified by changes in the population structure, in the types of houses and in the use of the agricultural space.

Following the socio-economic development of the Ohrid basin, it can be seen that the aforesaid elements appear in a certain sequence ; they are not only closely connected to each other, but also they originate from one another. It appears that in the transformation of the rural environment three stages may be singled out, which are characteristic of a definite category of changes. The first stage is characterized by the structural changes of population as the most dynamic component, the earliest to be affected by the socio-economic processes.

The process of re-structuring the population was considerably supported by the agricultural overpopulation of the area, endowed with poor quality land which however could provide normal subsistence for the population. Aside from the general process going on in the country, the most important part was played by the urban centres, which absorbed a part of the surplus population from the villages by employing it in no-agricultural activities. Thus, many changes occurred in the population structure. Taking into consideration the concentration of the gravitational power in towns, their influence is mostly expressed in their immediate surroundings. Thus, the settlements near Ohrid underwent greatest changes, resulting from a more dynamic development of that centre.

In the further part I will point to only some of the more important changes in the demographic structures, which have brought about not only the changed appearance of the settlements, but have also been important for the transformation of the agrarian landscape.

Having in mind the conditions before the war and those immediately after it, when the rural population was suffocated by the agrarian over-

population looking for future prospects only through agriculture, I have to emphasize that the new processes and changes have not only relieved the demographic pressure, but have also made it possible for a part of the rural population with less opportunities for agricultural development to earn their living in non-agricultural activities. This fact caused the rate of the agricultural population to be reduced from 48.3 per cent in 1961 to 45.2 per cent of the total rural population in 1971 ; the active agricultural population decreased then from 56.6 per cent to 44.3 per cent of the total active rural population. Considerably greater changes, however, occurred in the coastal area of Lake Ohrid and close areas around the urban settlements. There, the percentage of the agricultural population decreased from 48.6 per cent to 42.1 per cent of the total population, and that of the active agricultural population from 40.5 per cent to 28.5 per cent of the total agricultural active population. That means that about one-fourth of the active rural population changed its activity over a period of about 10 years.

In the same period—with the exception of building where employment decreased from 19.1 per cent (1961) to 7.9 per cent (1971)—the remaining activities increased in a similar manner. The number of employed in industry increased from 1.6 per cent to 4.2 per cent of the total active rural population. Ohrid's faster industrial development is reflected in its surrounding area where, in comparison to Struga (2.8 per cent), twice as much of the rural population is employed in industry (5.6 per cent). On the other hand, the faster development of tourism on the eastern shore of the Lake Ohrid increased employment in trade and hotels. Thus, for instance, over a period of 10 years the rate of people employed in those activities increased in the commune of Ohrid from 1.1 per cent to 2.3 per cent of the total rural population, while in the commune of Struga from 1.3 per cent to 1.4 per cent only. Also the zone of demographic attractiveness of Ohrid has extended over certain more distant areas than that of Struga.

Some members of or the whole rural families changed their professions and thus induced changes in their structure and in the number of persons per family. By drawing additional or total subsistence from non-agricultural activities they became independent which contributed to the splitting of the larger households into smaller ones. This way the percentage of the households with 1—2 members increased from 10.5 to 12,8, and that of the households with 3—4 members, from 21.9 to 31.2. It is interesting that this process was not the same in all the districts. In the commune of Ohrid the percentage of the families composed of 3—4 members increased by one-third (from 23 per cent to 33 per cent), while in Struga district the opposite process took place, i.e. the percentage of small households decreased as a result of a high natural increase, particularly among the Albanians.

Although many agricultural households became mixed and non-agricultural, following the shrinkage of their size, a slight increase may be noticed in the rate of purely agricultural households (from 31.9 per cent to 32.8 per cent). The increase in the percentage of the non-agricultural families was considerable (from 21.7 per cent to 43.7 per cent, i.e. double), while the mixed ones were reduced by a half, which means that one-half of them became non-agricultural. The slight increase of the agricultural and the rapid decrease of the mixed households shows that the transfer from the former to the latter pattern is brought to a minimum. This fact implies that a certain saturation of the nonagricultural activities and stabilization of the rural population in terms of subsisting from agriculture as a profitable activity, have been reached under present circumstances when urbanization and the development of tourism are strong.

The socio-economic changes in the rural population have also been reflected in the changes of the type of houses ; these changes belong to the second stage of the transformation of the rural environment. This process proceeded along various lines depending on the economic functions and the degree of influence of urbanization and tourism on a given village. It is characteristic of the Ohrid basin that after the war approximately 65 per cent of the housing fund was changed in the villages. The construction of the new, more modern houses occurred in two district periods ; namely in the first half and in the second half of the post-war period. In the first half houses of a more traditional type were built. In the second half more modern types of houses imitating urban houses, have been built, under the influence of the socio-economic changes in the population. In this period the process of transformation of the agricultural into non-agricultural population has been accompanied by such an intensive building of modern houses that in the period of about 10 years they increased by about 32 per cent.

This process developed faster in the coastal area and the area surrounding the urban centres. In half of these villages over 40 per cent and in one-fourth about 30—40 per cent of the houses date from the second half of the postwar period ; the remaining were built earlier. It is characteristic that in some shore villages, the population of which was engaged in livestock breeding and fishing, the construction of modern houses was started at an earlier period than in the villages with the population engaged in agriculture, such as Peštani, Trpejca, Radožda. This fact can be explained by the influence of tourism, which under new circumstances has brought some additional incomes, particularly after the time when livestock breeding was abandoned. The construction of modern houses in villages with less agricultural opportunities show that sources of income do not originate from agriculture but from non-agricultural activities. Temporary employment abroad has been an important contribution because members of

about 30 per cent of the families in each village work abroad. Nowadays, modern houses are built also in the villages the population of which is engaged in agriculture. This indicates a new stage and points to a certain stabilization of the rural population, particularly in the villages which are under the immediate influence of the towns of Ohrid and Struga.

The socio-economic processes in the rural environment were the latest to affect the agricultural area, i.e. to transform and adapt it to the newly created conditions. Therefore, the agricultural areas have changed slightly if compared with other areas. Transformation and modernization of agriculture began much earlier than the establishment of the socialized sector in this branch of economic activity, but not so much as a result of the socio-economic processes, the influence of urbanization and the development of tourism, as because of other factors.

Although the expansion of the transformation processes in the rural environment was late on the agricultural areas in comparison with the pre-war period and the first half of the post-war period, considerable changes have occurred, and the agricultural areas have not been excluded from transformation processes.

Migration and shortage of high-quality land caused that about 53 per cent of the agricultural land were abandoned. Significant changes occurred in the structure of cultivated land, in which the arable land occupied 81 per cent, orchards 8 per cent, vineyards 3.3 per cent and meadows 7.1 per cent. Changes in the utilization of arable land have became even more evident ; in comparison with the pre-war period the percentage of grain crops in total yields decreased from 94 per cent to 53 per cent, but that of vegetables increased from 3 per cent to 8 per cent and of industrial crops from 0.2 per cent to 8 per cent. This change in the utilization of agricultural land and toward cultivation of more profitable crops was brought about not only by the socio-economic processes but also by better utilization of the natural conditions. It is a characteristic phenomenon that owing to high altitudes in the Ohrid basin crops ripen later and appear on the market at the end of the tourist season. Moreover, certain local natural conditions have been considerably altered ; for example, irrigation, carried out on a growing scale, is a major factor in changing the crop structure. But the market demands have also induced certain changes, particularly big in the villages situated near to the consumer centres. So, for instance, some of these villages have become principal suppliers of agricultural products to the markets. The village of Velogošti and the village of Leskoec, near Ohrid have well developed such functions, and therefore considerable changes have occurred there in the population structure, the standard of houses, the households ; the agricultural land use has also altered greatly whenever the natural conditions allowed. Shortage of water has greatly handicapped the expansion of the cultivation of intensive crops. This is a particular

problem in Velgošti, since its water is taken for industrial purposes to Ohrid.

From the aforesaid it may be concluded that under the influence of urbanization and the still continued development of tourism, significant changes have affected in the population, houses and finally agriculture. They were first and foremost initiated by the country's overall economic development. However the specific conditions of the basin, especially lack of high quality land and the resulting necessity for quality land and the population to seek subsistence outside agriculture, in industrial and other activities, have also played an important role. Finally in order to strenghten a market to absorb the growing amount of local products certain changes had to be induced in the population structure shifting some of the producers of agricultural products to become their consumers.

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L'INFLUENCE DU TOURISME SUR L'HABITAT RURAL AUTOUR DU LAC OHRID

La partie d'Ohrid, du la région Ohrid-Prespa, représente sans aucun doute la meilleure région touristique de la Macédonie. L'on y trouve d'exceptionnelles possibilités naturelles pour le développement touristique. On rencontre, et cela sur une superficie relativement limitée, diverses variétés naturelles surtout hydrographiques et biogéographiques qui rendent possibles l'existence et le développement d'un tourisme moderne. De nombreux monuments historiques et culturels sont également présents et ceux-ci offrent aux visiteurs un séjour intéressant et agréable de même qu'ils donnent à la région une physionomie complexe.

D'après le degré de développement touristique nous pouvons déjà constater la croissance de tourisme. En 1973, les lieux touristiques sur les bords du lac d'Ohrid comptaient 20,4% de visiteurs et 37% de nuitées du trafic touristique total de la Macédonie qui est en augmentation constante. Ainsi pour une période de 20 années, c'est-à-dire de 1953 à 1973, le nombre de visiteurs a augmenté de plus de cinq fois, passant de 23 434 à 132 394 et le nombre de nuitées de plus de six fois de 64 927 en 1953 à 636 959 en 1973.

Même si un tel acroîsssement touristique ne s'est déroulé dans une première phase que dans les localités urbanisées, cette augmentation quantitative s'étend et englobe en même temps les localités voisines. It est ainsi possible de dire que le tourisme s'étend aujourd'hui le long de toute la côte de ce grand lac. Ainsi presque tous les habitats situés dans une périphérie plus éloignée du lac se trouvent englobés par cette expansion.

Une des conditions les plus importantes pour activer d'une façon plus efficace et plus importante la mise en valeur de ces régions était la construction d'un réseau routier moderne. Celui ci a au début incontestablement permis un tourisme de masse et de transit, tandis que le construction de logements transforma ce dernier en un tourisme de stationnement. De cette manière le tourisme devient chose présente dans tous les habitats ruraux (ou presque) qui sont situés au voisinage des bords de ce lac. Ainsi, des 105 localités des communes d'Ohrid et de Struga les 18, dont 7 à Struga et 11 à Ohrid sont situées au bord du lac Ohrid.

Même si le tourisme, dans la région Ohrid-Struga n'a fait son apparition qu'assez récemment, et n'a pas encore manifesté toutes ses caractéristiques aussi bien positives que négatives, il est toutefois possible, même à ce stade, d'en noter quelques unes. Parmi celles-ci nous citerons les suivantes[1] :

1. Influence du tourisme sur l'aménagement urbain et sur l'aménagement de l'environnement des habitats ruraux et leurs plus proches environs.

2. Stabilisation démographique, et il est normal de s'attendre dans une période à venir à un relancement de celle-ci.

3. Location de chambres et autres services pour touristes.

4. Embauche de la main d'oeuvre dans les établissements déstinés à l'acceuil touristique ainsi que dans d'autres activités concernant la satisfaction des besoins des touristes.

5. Orientation de la production agricole vers des cultures plus rentables.

6. Initiation à une activité d'investissement.

7. Amélioration du niveau culturel de la population rurale et changement progressif du mode de vie traditionnel.

Actuellement l'aménagement urbain en celui de l'tvironnement est le plus visible, non dans toutes les localités mais uniquement dans quelques unes, plus précisement dans celles qui se trouvent dans les parties les plus pittoresques de la région. Ce phénomène de transformation et d'aménagement est le plus vif dans la zone du bord du lac qui dispose de hautes qualités et possibilités touristiques comme Gorica, St. Stefan, Gradište.

Il y a vingt ans, plus précisement en 1954, les capacités de logement sur le bord du lac d'Ohrid n'existaient que dans deux localités, Ohrid et Struga et l'activisation touristique de Gorica et de St. Stefan n'était que commencée. En 1954 Ohrid ne disposait que de 1730 lits et Struga de 116 lits[2], par conséquant en 1954 il n'y avait sur les bords du lac d'Ohrid que 1853 lits disponibles. Par rapport à ce chiffre aujourd'hui dans cette région il existe 16 830 lits et ceux-ci sont disposés le long de la côte entière, c'est-à-dire de Radožda dans la partie ouest jusqu'à St. Naum au sud. Cependant en analysant l'emplacement des établissements de tourisme par rapport aux localités nous pouvons remarquer que leur présence directe dans les villages n'est pas aussi importante. Nous pouvons nous en rendre compte d'après le tableau suivant :

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[1] 1. Velestovo, 2. Elšani, 3. Konjsko, 4. Peštani, 5. Trpeica, 6. Ljubaništa, 7. Orman, 8. Orovnik, 9. Podmole, 10. Ramne, 11. Sipokno, 12. Šum, 13, Frangovo, 14, Misleševo, 15. Mali Vlaj, 16. Radolišta, 17. Kališta, 18. Radožda.

[2] G. Mileski : *Ohridskoto ezero kako važno rybolovno i turističko područye vo S. R. Makedonia* (Le lac d'Ohrid comme important centre de pêche et de tourisme en Macédonie), Godišen Zbornik na PMF v. 18, Skopje 1970.

Tableau 1

Localités touristiques	Nombre de lits en 1975
1. St. Naum	254
2. Gradište	1 300
3. Peštani	443
4. Elešec	1 350
5. St. Stefan	2 135
6. Gorica	486
7. Ohrid	6 463
8. A. Dukov	1 100
9. Struga	3 097
10. Kališta	98
11. Radožda	363
	Total 17 089

Des 18 localités rurales au total, il n'y en a que 3 qui offrent des possibilités de logement. Ce sont : Peštani, Kališta et Radožda. A Peštani et à Kališta les etablissements sont de type hôtelier tandis qu'à Rodožda il s'agit d'une maison de repos syndicale.

Un nombre important de localités touristiques sont créées ou sont en phase de création en déhors des endroits habités telles Gorica, St. Stefan, Gradište, Elešec, St. Naum. Il serait cependant faux de croire que dans les autres localités rurales l'influence touristique ne se fait pas sentir. Au contraire, le fait même que ces localités touristiques se trouvent dans le voisinage le plus proche de certains villages comme par exemple : Velestovo, Šipokno, près de Gorica et de St. Stefan, Elšani près d'Elešec, Trpeica près de Gradište, Ljubaništa près de St. Naum etc., montre que le tourisme par d'autres formes et par d'autres voies influence la transformation des localités rurales.

A côté de la construction d'établissements commerciaux en matériaux solides, les maisons de repos, les campings, et particulièrement la construction des habitations ont une part importante dans le plan d'urbanization du bord du lac d'Ohrid.

Ainsi jusqu'en 1966 il n'y avait dans cette région aucune habitation secondaire, en 1971 leur nombre était environ 60, tandis qu'aujourd'hui il s'élève à plus de 124, parmi lesquelles certaines d'assez importantes dimensions. Jusqu'en 1971 il n'existait aucun complexe touristique, alors qu'il en existe trois aujourd'hui : Lagadin, Elešec et Konjsko. La première localité possède 58 villas, la seconde 44, et la troisiéme, la plus petite en a 22. A Lagadin la superficie de 22 750 m² a été urbanisée, à Elešec — 32 408 m² et à Konjsko — 6 860 m², ou, au total, dans les 3 localités 62 018 m².

Phot. 1. St. Stefan

Phot. 2. Village Peštani

L'existence de ces trois villages touristiques sur une surface relativement restreinte qui s'étend de St. Stefan au village de Peštani témoigne d'une manière assez claire que le tourisme résidentiel représente ici un important urbanisateur de l'espace. Il exerce dans ces lieux une forte influence sur le localités rurales voisines et cela surtout sur les villages de Konjsko et de Elšani.

Ces dernières années les habitations secondaires se construisent également aux alentours du village de Trpeica, ce qui signifie que ce phénomène possède progressivement une fonction touristique directe.

Le tourisme motorisé, qui ces dernières années au niveau mondial a vu une expansion extrêmement importante, est là aussi présent et exerce une influence considérable sur l'urbanisation et l'aménagement touristique de certaines parties du bord du lac. Il existe aujourd'hui 5 campings bien aménagés. Ceux-ci occupent une superficie de 200 000 m². Le plus grand d'entre eux est l'autocamp " Gradište " — 140 000 m², et le plus petit " Crni Drim " 3 000 m².

A cause d'un trafic touristique de stationnement encore relativement limité en dehors des localités urbaines d'Ohrid, de Struga et de St. Stefan, les autres caractéristiques mentionnées, comme par exemple la stabilisation demographique ou bien la location de chambres et les autres services aux touristes de la part de la population (rurale) ne se manifestent pas d'une manière aussi marquante. Le nombre d'habitants dans ces localités en 1971 par rapport à 1961 n'a augmenté que de 2 581 seulement.

Dans certaines localités, il y a même une diminution de ce nombre, par exemple dans les villages de Trpeica et de Ljubaništa. Le nombre d'emplois à cause des capacités de logement limitées et surtout de la présence d'établissements commerciaux, est moindre, même si le problème de l'emploi ne devrait pas être examiné par rapport aux établissements qui sont situés dans les localités mêmes, mais également en dehors d'elles. A côté de l'emploi fixe il y a des formes d'emploi que les statistiques n'enregistrent pas. L'une d'elles est la maçonnerie. La construction d'habitations secondaires prend ici une forme massive et engage pendant l'année entière une partie importante de villageois. Il est également intéressant de noter certaines formes d'engagement de la population rurale dans le tourisme.

Ainsi les habitants de Velestovo offrent pendant la période d'été leurs chevaux à l'agence touristique " Generalturist ", qui de son côté utilise ceux-ci pour des excursions journalières dans la montagne de Galičica. Il n'est pas rare, que cette agence à cause du nombre de touristes, se trouve obligée d'organiser deux excursions par jour. En 1973, environ 1500 touristes étrangers, en majeur partie hollandais, ont pris part à ce genre d'excursions. Le prix d'un cheval pour la journée est de 60 dinars, ce qui rapporte aux propriétaires de chevaux quelque 10 000 dinars par an.

La location de chambres privées, même si celle-ci n'est enregistrée nulle part, est effective dans certains de ces villages pendant toute la saison d'été. D'après une de nos enquètes effectuée en 1974 dans le village de Peštani, il y avait environ 30 familles qui louaient au total 50 lits. Avec la construction d'établissements touristiques à Kalište et à Radožda, certaines familles se sont manifestées en tant qu'intéressées pour la location de chambres aux touristes.

Sous l'influence du tourisme apparaît un certain changement même dans la production agricole. Ce changement est surtout visible dans les villages de plaine de la région d'Ohrid et de Struga et est moindre sinon inexistant dans les villages côtiers. Ces dernières localités sont déjà depuis longtemps connues comme producteurs peu importants de produits agricoles vu le manque de terres cultivables. Toutefois celles-ci sont orientées vers la production du lait, particulièrement à Peštani. Il est également nécessaire de noter la pêche qui prend de plus en plus d'importance avec l'augmentation du nombre de touristes qui demandent des quantités toujours plus grandes de poissons. Ainsi la pêche devient une activité indispensable qui engage une part importante de la population. De ce fait apparaissent des possibilités de création d'emplois supplémentaires pour les habitants de ces localités et l'augmentation de leurs revenus, ce qui amène une amélioration de leur situation matérielle et financière.

Le tourisme influence également sur le niveau social et politique de la population villageoise. Dans certains villages comme Peštani, l'on constate certains changements dans le mode de vie traditionnel.

Conjointement au développement du tourisme, des conséquences négatives apparaissent également comme abandon des surfaces cultivables, augmentation importante du prix des terrains, surtout pour la construction etc. Dans diverses localités touristiques la commune même, vend les terrains à des prix tels, que ceux-ci dépassent ceux des régions urbaines. Avec le développement rapide du tourisme résidentiel, les propriétaires des terrains pour la construction de maisons secondaires obtiennent des offres d'achat extrèmement intéressants. De cette façon la population rurale reste sans terre, et celle-ci ne change pas seulement de propriétaire mais également d'usage.

L'influence du tourisme en ce qui concerne la transformation des localités rurales des bords du lac d'Ohrid dans une période à venir devrait être beaucoup plus grande.

Avant tout, les urbanistes prévoient le développement du tourisme à un rythme encore plus accéléré. Pour cette raison un plan a été élaboré dans lequel, sur les bases scientifiques sont prévus les usages de toutes les surfaces de la région d'Ohrid et a été donnée la projection du trafic touristique jusqu'à 1990. Pour la réalisation de ce plan, et pour la satisfaction des besoins touristiques il a été prévu l'aménagement de 9 localités touris-

tiques : 1. Ohrid, 2. Gorica-St. Stefan, 3. Peštani-Gradište, 4. St. Naum, 5. Andon Dukov, 6. Struga-est, 7. Struga-ville, 8. Kalište et 9. Radožda.

Cela veut en fait signifier l'urbanisation de la côte du lac d'Ohrid avec quoi, toutes les localités de cette région d'une manière bien déterminée, vont obtenir une fonction touristique. Jusqu'en 1990 a été prévue l'augmentation du nombre de lits jusqu'à 31 100 (nombre de lits que possède aujourd'hui toute la RS de Macédonie). Sur 31 100 lits, 22 700 seront sur le territoire de la commune d'Ohrid et 8 400 dans celle de Struga. Avec une utilisation de 73 jours par année on prévoit environ 3 556 000 nuitées. Avec cela la transformation entamée sera encore plus visible. Il est donc normal de s'attendre à ce que certains villages deviennent uniquement des localités touristiques, c'est-à-dire que leur fonction touristique soit primordiale et leurs autres activités aujourd'hui principales deviennent peu à peu secondaires. Cette réorientation, vue historiquement, s'est déjà manifestée dans certaines localités. Un exemple frappant de ce phénomène est le village de Peštani qui dans le passé n'était qu'un village de pêche et d'élevage, ensuite la source de main-d'oeuvre, pour enfin s'orienter de nos jours vers le tourisme. L'argent économisé pendant leur travail à l'étranger ou bien dans le pays même, a été uniquement investi dans la construction de maisons nouvelles qui par le nombre de chambres qu'elles possèdent offrent une possibilité de logement et de séjour aux touristes.

De cette façon se créé une large base matérielle pour le développement du tourisme et apparaît en même temps une orientation progressive vers celui-ci en tant que source principale de revenus.

Pour conclure, il serait nécessaire d'ajouter qu'une transformation trop rapide et totale de l'espace rural aurait un effet négatif. Ces habitats ruraux sont relativement anciens, et malgré le fait qu'ils soient pauvres, ils représentent par eux-mêmes un potentiel et une qualité touristique importants et comme tels doivent être sauvegardés. Les efforts doivent donc être dirigés pour qu'ils soient complétement insérés dans le processus d'aménagement urbain et de l'environnement.

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THE VILLAGE OF VRBOSKA ON THE ISLAND OF HVAR. AN EXAMPLE OF A CURRENT TRANSFORMATION OF A RURAL SETTLEMENT IN YUGOSLAVIA UNDER THE INFLUENCE OF TOURISM

Among contemporary changes in rural settlement in Yugoslavia a special place is occupied by those located on the Adriatic sea coast, which, contrary to the most of island settlements, have been influenced by tourism. Characteristic features of this influence can be clearly seen in the example of the village Vrboska. Vrboska, in general, does not differ greatly from the rest of the coastal rural settlements. This village is only an ex-

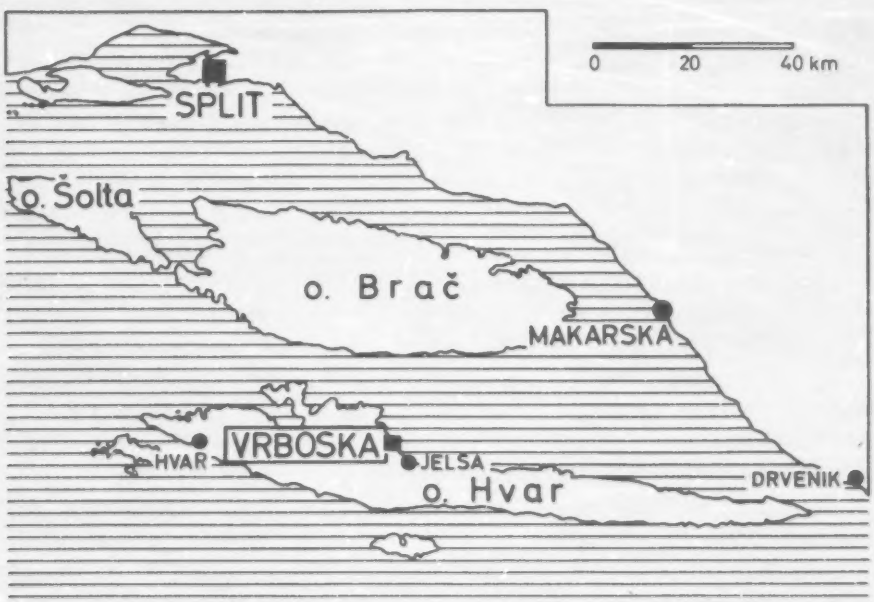

Fig. 1. Geographical position of Vrboska.

ample of the processes and trends occurring on Yugoslav Adriatic coast under the influence of tourism. Because of its specific insular position, the tourist activity on Hvar began later than that in the coastal settlements. Thanks to its numerous activities it has outstripped most of its continental competitors. Situated on the island of Hvar, Vrboska is a typical Mediterranean rural settlement (Fig. 1). It was founded in the 15th century by inhabitants of the neighbouring village of Vrbanj, located in the interior of the island, to serve as a port for that village, from which it also took its name. It was built at the head of a deep bay which penetrates 4 km into the northern coast of the island from the east towards the west. Even though it is a rural settlement, it was oriented towards a money economy very early, primarily due to the wine grapes growing. This fact is reflected in the architecture of the settlement. Commercial agriculture was linked with local fishing, and this led to the foundation of the first non-agricultural activity in the village at the beginning of this century, and with traditional small boat building. In 1908, a small factory for fish canning was opened at practically the same time as a small shipyard, oriented more towards refitting and repairing than towards the construction of new boats. These enterprises, however small, made it possible for a small part of the active population to be employed outside the group of primary activities.

In 1935 Vrboska gained one additional function, that of a summer resort. Two brothers from Vrboska built Hotel Madeira upon their return from America. This was a 40-bed hotel whose guests until the Second World War almost exclusively were from Czechoslovakia. Despite the fact that Vrboska had neither a water system nor electricity, we can accept this year as the beginning of the development of tourism there. The construction of the hotel was followed by the construction of the first two vacation homes in 1936 and 1938. The owners of these houses were from Zagreb, but had been born in Vrboska and the nearby village of Svirač respectively.

During the war all tourist activity ceased due to the occupation by the Axis powers. After the war, Hotel Madeira and Villa Anica (a large private vacation home) were nationalized and converted into a children's resort, a function which they maintained until 1955.

The real basis for the beginning of present-day commercial tourism was founded in the first half of the 1950's. In 1951 and 1952, Vrboska built a local water system from a spring situated above the village. This system originally served only the village itself, but in 1955 it was extended to Hotel Madeira. Together with the development of the water system, the electrification programme was undertaken. In the first stage a diesel generator was installed, which provided power only from sunset till 11 o'clock at night. Unlimited use of electricity was made possible only in 1956 when the village was included into the mainland electrical network.

Phot. 1. Vrboska on Hvar

Phot. 2. Vrboska on Hvar a fortified church

The electrification of the village and the provision of water supply made it possible to start new activities. In 1955, Hotel Madeira regained its pre-war function. First two post-war vacation homes were built in 1956 and 1958, again by people from Zagreb, but this time not originating from the island.

Phot. 3. Vrboska on Hvar

Tourists who formerly used to come for, at most, a one-day excursion, drawn by the beautiful forested coast, the harmonious architecture of Vrboska, and especially by the artistic values of its churches, began to stay longer. Since the capacity of Hotel Madeira was increased only by ten beds following the acquisition of the Villa Anica, it could not satisfy the demand created by large numbers of people interested in vacationing in Vrboska. As a consequence, starting from 1957 tourists have rented accomodation from the townspeople. As a result of this procedure, the number of households in Vrboska which rented rooms to tourists increased and reached its peak in 1961. This new form of tourism was rapidly followed by building new vacation homes. This activity was most developed in 1965—1966 and 1969. At the same time, 11 buildings, which now are utilized by four different enterprises, were constructed. The first building of Hotel Adriatic, which now has a capacity of 390 beds, was constructed in the pine forest of the Glavica peninsula east of the settlement in 1965.

All this development led to significant transformation of a typical village settlement into one increasingly oriented towards tourism and recreation. Such a transformation is best illustrated by the following indicators :

1. Lease of rooms from the local inhabitants,
2. Vacation houses,
3. Resort homes and
4. New hotel.

1. LEASE OF ROOMS FROM THE LOCAL INHABITANTS

Insufficient capacity of the hotels forced tourists to approach local people for lodging. This way an increasing number of local households in Vrboska found a new economic activity. The lease of private rooms was started in 1957 and rapidly increased until 1965 (table 1). In 1974 out of the total of 176 households in Vrboska 57, or 32.4 per cent, leased rooms to tourists (Table 2). Domestic tourists accounted for most of the guests, but already one-fifth of the households let rooms primarily or entirely to foreign tourists.

All together 154 two-bedroom rooms, i.e. 308 beds, with additional 30 beds if needed (Table 3) were available in 1974 for tourists. Most of the households (27) leased two rooms (47.4 per cent), ond only 5 leased one. But two of the households leased as many as 7 rooms. A greater number of rooms let resulted from relatively large houses or apartments, averaging 115 m², their size varies from 43 m² to 215 m². Three of the households let the whole apartment, but they were also engaged in other economic activities and not only in room leasing.

Table 1. Changes in the numbers of households which rented rooms to tourists and the year when they started this activity for the first time.

Year	1957	58	59	60	61	62	63	63	65	66	67	68	69	70	71	72	73	74	Total
No. of households renting rooms to tourists	3	8	14	23	35	42	45	49	53	54	55	55	55	56	56	56	57	57	57
New households taking up this activity, by years	3	5	6	9	12	7	3	4	4	1	1	—	—	1	—	—	1	—	57
	5,3	8,8	10,5	15;8	21,1	12,3	5,3	7,0	7,0	1,7	1,7	—	—	1,7	—	—	1,7	—	100

Source: Interviews of householders in Vrboska who let rooms to tourists, carried out from April 30 till May 5, 1975 and data provided by the Tourist Office as well as the Village Administration of Vrboska.

Table 2. Household of Vrboska renting rooms to tourists in 1974

renting households	No.	%
To Yugoslav tourists only	22	38,6
Predominantly to Yugoslav tourists	18	31.6
Equally to the Yugoslavs and foreigners	5	8.8
Predominanly to foreigners	8	14.0
Only to foreigners	4	7.0
No. of renting households	57	32.4
Total No. of households in Vrboska	176	100.0

Source: As for Table 1

Table 3. Households in Vrboska according to number of rented rooms and beds in 1974

Rented	Households		Rooms		Beds	
	No.	%	No.	%	No.	%
1 room or 2 beds	5	8.8	5	3.2	10	3.2
2 rooms or 4 beds	27	47.4	54	35.1	108	35.1
3 ,, ,, 6 beds	16	28.0	48	31.2	96	31.2
4 ,, ,, 8 beds	3	5.3	12	7.8	24	7.8
5 ,, ,, 10 beds	3	5.3	15	9.7	30	9.7
6 ,, ,, 12 beds	1	1.7	6	3.9	12	3.9
7 ,, ,, 14 beds	2	3.5	14	9.1	28	9.1
Total	57	100.0	154	100.0	308	100.0

Source: As for Table 1

Table 4. Households in Vrboska which rented kitchens or prepared meals for their guests in 1974

No. of households		Preparing meals		Renting kitchens		Did not prepare meals nor rented kitchens	
No.	%	No.	%	No.	%	No.	%
57	100	18	31.6	27	47.4	12	21.0

Source: As for Table 1

Only 12 households leased solely rooms, while 27 leased the kitchens too. As many as 18 prepared even meals for guests and thus increasing their incomes (Table 4), and rising their standard of living. As many as 139, or 90.3 per cent, of the leased rooms were classified in the first category, only 15, or 9.7 per cent, in the second, while there were no rooms classified as the third category.

Enormous positive changes owing to leasing rooms and therefore increasing incomes are at best illustrated by differences in the standard of living of the households before leasing and in the period of research (Table 5). Great differences still exist between the households which lease rooms and those which do not, usually to the benefit of the former group.

Table 5. Some indices of the standard attained by the renting households of Vrboska prior to renting activity and in 1974

Indices of standard	Prior to renting		1974	
	No.	%	No.	%
Electric or gas kitchen-range	9	15.8	57	100
Radio	5	8.8	57	100
TV set	—	—	53	93,0
Refrigerator	3	5.3	51	89.5
Electric boiler	2	3.5	50	87.7
Washing machine	—	—	47	82.5
W. C. inside the house	2	3.5	57	100
Bathroom	—	—	57	100
Telephone	—	—	19	33.3
Boat	19	33.3	26	45.6
Motorcycle	—	—	17	29.8
Car	—	—	6	10.5
Renting households	57	100	57	100

Source: As for Table 1

It is not surprising that before the leasing period there were no TV sets, telephones or bathrooms due to lack of electricity and water supply. The rapid increase in living standards as reflected by the number of technical appliances and living standards, or by the acquisition of new property in general, is astonishing. It is not only an evidence of disharmony between urban habitat and the earlier living standard of Vrboska, but also the most obvious demonstration of the role played by the development of tourism.

2. VACATION HOUSES

A tourist phenomenon which has influenced the greatest the landscape of Vrboska is vacation houses. Even if occasionally built earlier, the most intensive years of their building were 1965—1966 and 1969 (Table 6). The building of 27 of them by "Krivaja", a construction enterprise from

Table 6. Year of construction or adaptation of private vacation homes in Vrboska*)

Year of construction	Earlier than 1962	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
No.	3	1	1	3	17	19	4	9	13	8	4	3	3	3
per cent	3,1	1,0	1,0	3,1	17,3	19,4	4,1	9,2	13,3	8,2	4,1	3,1	3,1	3,1

*) Data for 7 houses are not included because of their gradual adaptation since they are mainly former homes of the owners parents.

Source: Interviews of the owners of vacation homes in Vrboska, carried out from April 30 till May 5, 1975, and data from the Tourist Office of Vrboska.

Zavidovići, caused a big jump in the number of vacation houses. "Krivaja" bought a number of lots from the Vrboska Village Council for a symbolic amount of money and built the houses for sale. They were sold in the same year, primarily to customers from Belgrade. The relatively low prices of these houses resulted from cheaply acquired land, what was intended by local politicians who wanted to increase tourist activity in Vrboska.

In 1974 there were 98 vacation houses with 104 owners ; i.e. some of them owned by two partners. Most of the houses (69) were built outside the village, east and north-east from Hotel Madeira, only 4 along the road to Jelsa and 25 in the village itself. Of 98 objects only 20 were redeveloped old village houses or farm buildings inside the village, while the remaining were new.

Their owners came from different parts of Yugoslavia and one even from abroad (Table 7). Most of them are from other communes of Croatia

Table 7. Origin of the owners of the vacation houses in Vrboska 1974

	Place of permanent residence		Place of birth	
	No.	%	No.	%
Vrboska	—	—	18	17.3
Other place in the same commune	1	1,0	6	5.8
Other commune of Croatia	43	41,3	24	23.1
Bosnia and Hercegovina	13	12.5	22	21.2
Montenegro	1	1.0	6	5.8
Serbia proper	36	34.6	18	17.3
Vojvodina	9	8.6	10	9.6
France	1	1,0	—	—
Total	104	100,0	104	100.0

Source: As for Table 6

and from Serbia Proper. An interesting feature is that one-fourth of them were born on the island of Hvar, which points to their close ties with this area. The sizes of these houses are such that they should not be called "weekend houses" ; they are in fact summer vacation homes, solidly built.

The average size per owner is 76.7 m², ranging from 17 m² to 214 m². On average there are 3.6 rooms per one vacation house and 3.4 rooms per one owner. The most common are those with 2, 3 or 4 rooms (Table 8). These rooms and houses are well equipped. All the houses have plumbing, a kitchen bathroom and WC, 17.3 per cent have two kitchens, 31.2 per cent two bathrooms, 42.8 per cent two WC's, 20.4 per cent have a garage and exactly 50 per cent a cellar, 94.3 per cent are electrified. Such an equipment enabled some of the owners to lease rooms to tourists, thus changing their initial purpose.

Table 8. Vacation houses in Vrboska according to the total number of rooms and the number of rooms they rented in 1974

Rooms per vacation house	Number of houses according to the number of rooms		Total no. of rooms in vacation houses		Rented rooms in vacation houses	
No.	No.	%	No.	%	No.	%
1	2	2.0	2	0.6	—	—
2	21	21.4	42	11.8	12	28.6
3	32	32.7	96	27.0	10	10.4
4	24	24.5	96	27.0	40	41.6
5	8	8.2	40	11.2	12	30.0
6	7	7.1	42	11.8	30	71.4
8	3	3.1	24	6.7	13	54.2
14	1	1.0	14	3.9	13	92.9
Total	98	100.0	356	100.0	130	36.5

Source: As for Table 6

As many as 34.6 per cent of the vacation houses owners let their rooms (Table 9). Out of the total of 365 rooms, 130, or 36.5 per cent, was leased in the same year (Table 8). It can be supposed that such a procedure was contrary to the wishes of the local inhabitants, which might think that their own guests were taken by the owners of the vacation houses.

Table 9. Owners of vacation houses in Vrboska according to utilization of vacation house in 1974

Used by owner and his family		Owner with his family, relatives and friends		Owner with his family and renting		Total	
No.	%	No.	%	No.	%	No.	%
40	38.5	28	26.9	36	34.6	104	100

Source: As for Table 6

But this was not the case. The local inhabitants get their guests through the local tourist office, while the owners of the vacation houses bring their guests mainly from the places of their permanent residence. This way they actually help to promote tourism in Vrboska.

The island of Hvar is well known for its mild winters and in a future more visitors staying at the vacation houses during the winter can be expected. At present, 29.8 per cent of the owners, mainly retired people, live in their houses during winter. The average yearly index showing the number of visits paid by the owners is relatively low (only 2.66), which is

the result of the position of the island and of the distance from their permanent residence. As many as 27.9 per cent of the owners come there once a year, while only three of them 7 or more times.

Even if the owners on average come to Hvar less than three times a year, they actually stay here relatively long, 2 months and 25 days a year (Table 10). Most (23.1 per cent) stay for one month, as long as their vaca-

Table 10. Owners of vacation houses in Vrboska according length of sojourn in Vrboska (by months)

Stay by month	Owners		Stay by month	Owners	
Until 0.5	4	3.8	about 4	8	7.8
about 1	24	23.1	,, 5	8	3.8
,, 1.5	13	12.5	,, 6	5	4.8
,, 2	16	15.4	,, 7	2	1.9
,, 2.5	12	11.5	,, 9	1	1.0
,, 3	8	7.8	,, 10	4	3.8
,, 3.5	2	1.9	,, 11	1	1.0

Source: As for Table 6

tion allows them, while a great number of them stays longer. This lengthy stay is possible because 43.3 per cent of the owners are retired. Among the ones staying for the longest period are persons suffering from asthma for which the Hvar climate is a very good cure.

All the above data confirm the earlier conclusion. These buildings were not "weekend houses" in a classical sense, but houses for long vacation, now mainly in summer, but with an increasing tendency to use them in winter and to be partially leased to guests. This way Vrboska has not only gained new houses in its inventory and surrounding landscape, but also a number of people who while are not officially counted as the inhabitants of Vrboska, spend most of the year there and physically have become naturalized citizens of Vrboska.

3. RESORT HOMES

In 1974 Vrboska had a total of four resort homes. These houses were not equipped with restaurants, social rooms or similar, because they were not intended to have them in the first place. The first one is a sizeable recreation house with 6 bedrooms, purchased by a bank in Kula from a private owner. The purpose for purchasing the house was to provide the bank employees with a place where they could spend their vacations. The same was done by Puštanska štedionica (The Postal Savings) from Belgrade and banks from Pirot and Prokuplje. In 1966 they bought houses from "*Krivaja*" Construction Enterprise, which had built them for sale as recreation or vacation houses. The new owners redeveloped the houses and added some

rooms in order to meet the needs of their staff vacationing there. The employees prepared their own meals and cleaned their rooms. These houses became typical resort homes. The Postal Savings owns 7 buildings with 34 rooms, the bank from Prokuplje 2 buildings and 8 rooms and the bank from Pirot 1 building with 4 rooms. Altogether the resort homes have 11 buildings and 52 two-bed rooms, which are fully occupied from June 1st until Sept. 30th.

4. A NEW HOTEL

After connecting Vrboska to the island water supply network in 1965, the basis for the development of commercial tourism was established. It cannot be claimed that the new network of water supply led to the building of Hotel Adriatic, or that the construction of that hotel and numerous vacation houses accelerated the connection to the water supply. In 1965, the first hotel was constructed along with the hotel restaurant. Its three additional structures were built in 1966, 1970 and 1971. Today they form together a nice group of hotel buildings in the dense pine woods of Glavica peninsula, within a close distance of the Soline bay and not far from famous Ploče or the nudist camp on the small island Zečevo. The guests of this A-category hotel are mainly foreigners. Hotel Adriatic has 390 beds and is open from beginning of May until the beginning of October. It is owned by an economic enterprise from Jelsa along with the old hotel Madeira. Both of them together employ 38 people from Vrboska (28 permanently and 10 under extended work period). Even if hotels do not belong to Vrboska, the village profits by collecting sojourning taxes through the Tourist Office.

All the facts and data mentioned above, starting from leasing rooms, through vacation houses, resort homes and hotels prove how greatly tourism has influenced the situation of Vrboska. It is reflected not only in the landscape, but in the position of its citizens too. Their life-style has changed and the standard of living is higher. A clear example is provided by the additional income which in 57 households during the summer season alone accounts for one-fourth of the annual income of the whole village. This income includes retirement benefits too. This is the best example what tourism can offer to Vrboska today. To its former agricultural-fishing activity, Vrboska had added a new one; a function of a tourist-vacationing resort. This brought about more positive changes in last ten years than all the activities during the past half century.

The four mentioned indices are excellent illustrations of the rapid transition of a typical village of farmers and fishermen, the situation at the beginning of the present century, into a village oriented towards tourism. This does not mean that the active population of Vrboska is no longer engaged in agriculture. The share of population active in this branch

of economy fell from 45.9 per cent to 40.4 per cent during the inter-censal period from 1961 to 1971. Because of the closing of the fish cannery the share in industry fell from 25.5 per cent to only 3.5 per cent. At the same time, the number of people engaged in tourism and trade rose from only 3.9 per cent to 21.2 per cent. In 1974, besides 57 households which rented rooms, 58 people from Vrboska were employed full-time and 18 seasonally in tourism. The settlement could provide a total of 1145 tourist beds. These are all large numbers for a village with only 198 active inhabitants and a total population of 555. Irrespective of employment and room renting, Vrboska also earns a significant income from tourist taxes. This money is used primarily to make improvements in the village. The last season income, for example, was spent on paving some of the streets of the village. Thus, the picture of Vrboska is also changing. The settlement is growing larger, more developed, and more attractive; there are more and more possibilities for employment, and the standard of living of the inhabitants is rising. In a word, the transformation of the village is obvious at every step, primarily as the result of the development of tourism.

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INFLUENCE DU TOURISME SUR L'HABITAT RURAL DU BASIN DE PODHALE

La région du Podhale s'étend dans le sud de la voïevodie de Cracovie et comprenait deux unités arministratives : le powiat de Nowy Targ (1574,4 km²) et le powiat urbain de Zakopane (334,6 km²). C'est une région de Pologne des plus diversifiées au point de vue du paysage et de la richesse de ses valeurs touristiques [1], tant à l'échelle polonaise qu'internationale, ce qui en a fait depuis longtemps le but de la pénétration du tourisme. Les arrivées de touristes et de curistes ont joué un rôle décisif dans le développement de bien des localités, au point que certaines de celles-ci se sont transformées en unités urbanis. Zakopane peut ici servir d'exemple de ce processus : de petit village de montagne, il est devenu à la fin des années quatre-vingts du XIX-e s. une station climatique renommée (statut de 1886), et en 1933 a acquis les droits de ville [2]. Sur décision du Conseil des Ministres du 31-III-1951, Zakopane a été détaché du powiat de Nowy Targ pour former un powiat urbain séparé. En 1953, Rabka, station climatique jusqu'alors commune autonome, a obtenu les droits de ville. En 1958, Krościenko et Szczawnica, (auparavant villages) ont été élevés au rang habitats urbains ; quatre ans plus tard (1962), Szczawnica devient une ville. Enfin, le 1-I-1973, Krościenko a été rattaché administrativement, comme quartier séparé à la ville de Szczawnica. Toutes ces localités jouent actuellement un rôle prépondérant dans l'accueil des touristes qui viennent dans la région.

[1] La région du Podhale comprend, entre autres, toute la partie polonaise des Tatry, les Pieniny avec les pittoresques Gorges du Dunajec, la parti Sud des chaînes des Hautes Beskides, toute une serie de sources d'eaux minérales depuis longtemps exploitées, etc. Le climat des Tatry a des propriétés curatives. On y trouve trois parcs nationaux d'entre les 4 de la voïevodie de Cracovie et des 13 de Pologne, ce sont : le parc des Tatry, celui des Pieniny et celui de Babia Góra (en partie). Il y a aussi près de 15 réserves naturelles sous protection et de nombreux monuments de la nature. On y rencontre beaucoup d'intéressants monuments d'architecture et de construction. Le folklore montagnard local, conservé et cultive, contribue grandement à rehausser l'attrait du Podhale.

[2] Jusqu'en 1932, Nowy Targ était la seule ville de la région.

Les arrivées de touristes s'intensifient à la fin du XIX-e s. et au début du XX-e ; elles sont particulièrement marquées dans les années trente où environ 300.000 personnes venaient se reposer en Podhale. On note, aprés la deuxième guerre mondiale, un développement dynamique du mouvement touristique, surtout à partir des années soixante [3]. Au cours de la dernière décennie le nombre des touristes a doublé. (En 1973 Zakopane 3,1 millions, powiat Nowy Targ 3,1 millions).

Sur le territoire étudié, le repos a un caractère nettement sur-régional, surtout en ce qui concerne le tourisme de séjour et les excursions, ainsi que le tourisme étranger. En 1973, 6,6% du total des touristes polonais ont séjourné dans la région du Podhale, dont 10,0% pour le tourisme de séjour, 10,3% pour les excursions et 3,2% pour les week — end. Environ 10% des touristes étrangers venus en Pologne ont visité le Podhale.

Cette région accuse une haute concentration de touristes à l'echelle de la voïevodie de Cracovie. En 1965, on note 27,1% du total des personnes venues se reposer dans la voïevodie [4], en 1968 — 45,0%, en 1971 — 38,5% et en 1973 — 39,5%. Le rôle du Podhale est particulièrement marqué dans le tourisme de séjour et les excursions ; on compte respectivement pour 1973, 46,7% et 41,3% du total des touristes qui ont joui de ces formes de repos sur le territoire de la voïevodie.

La place qu'occupe le Podhale dans le tourisme de tout le pays et de la voïevodie au point de vue hébergement, tant nationalisé que privé, est également importante. En 1974, on a enregistré pour l'hébergement nationalisé [5] 55.471 lits, ce qui fait 55,3% dans la voïevodie et env. 3,0% en Pologne (en 1960, on notait respectivement 38,7% et 3,7%). Les chambres louées directement par les touristes chez les habitants du Podhale constituent jusqu' à 38,7% de la base d'hébergement. A ce point de vue, la région en question vient nettement en tête dans la voïevodie de Cracovie (il y a là jusqu'à 58,6 % de ces locaux accessibles aux touristes) et participe ainsi grandement à la base polonaise de chambres privées (5,8%).

Depuis bien des décennies le tourisme et les stations climatiques du Podhale ont exercé une forte influence sur l'économie de la région. Cela se voit aussi bien dans la structure des revenus de la population que

[3] On se heurte à certaines difficultés pour définir exactement le mouvement touristique aprés la II-e guerre mondiale, car la statistique officielle n'a été commencés qu'en 1967. Les materiaux concernant les années précédentes ne sont basés que sur des estimations et ne sont donnés que par des comptes-rendus de la voïevodie. Pour la région étudiée, les matériaux permettent de chiffrer la fréquence des touristes à Zakopane : en 1949 — 150 mille pers., en 1958 — 901 mille, en 1965 — déjà 1.400 mille A la fin des années cinquante, env. 800.000 touristes (par an) viennent se reposer dans le district de Nowy Targ, et en 1965 — 1.500 mille.

[4] La ville de Cracovie constitue une unité administrative autonome, en dehors de la voïevodie. En 1968, on a compté 1,8 million de touristes, en 1973 — 3,1 millions.

[5] Y compris les chambres louées chez l'habitant par les entreprises nationalisées, mais sans compter les colonies de vacances logées en général dans les écoles.

dans le développement du secteur tertiaire, le chiffre d'affaires du commerce, l'accroissement de la construction de maisons (dont l'équipement est général d'un haut standard) ou enfin dans les investissements touristiques.

Les arrivées de touristes entraînent un transfert de grandes sommes d'argent. Une partie de celui-ci va à l'économie nationale (notamment à travers la gastronomie et les transports) ; des sommes importantes vont cependant directement dans la poche des habitants en échange de services rendus aux touristes.

Au cours de l'année 1973, on a noté un transfert d'argent dû aux touristes qui se montait à 1360,1 millions de zlotys.

S'il s'agit de la répartition géographique des revenus dus au tourisme, on remarque en cette région des disproportions relativement grandes entre diverses localités. Cela provient aussi bien de l'intensité du mouvement touristique que de la forme dominante du tourisme. En 1973, on a noté le mouvement touristique en 83 localités de la région [6], dont 79 sont des unités rurales. Au cours des derières années on observe un net accroissement de l'activité des villages en vue d'adapter les logements et l'industrie hôtelière aux besoins des vacanciers. Cela se voit, entre autres, dans le développement du réseau des unités rurales où le tourisme a lieu : dans les années trente et cinquante, on a noté des touristes dans environ 60 villages de la région, en 1965 — dans 67, en 1973 — dans 79 déjà. En dépit de la nette supériorité des villes du Podhale (près de 70 % du total des touristes) dans le service du mouvement touristique, l'influence du tourisme se fait sentir dans l'économie des villages, là surtout où les touristes sont fréquents. On observe une nette concentration du mouvement touristique (83, 1 %) dans 16 unités rurales (20,3 % du total des villages de tourisme) situées pour la plupart au pied des Tatry et des Pieniny. Ce sont en premier lieu : Bukowina Tatrzańska (15,6 % des touristes venant se reposer dans les villages du Podhale), Poronin (15,0 %), Czorsztyn 14,7), Kościelisko (6,2%), Kluszkowce (6,2%), Zubrzyca Górna (4,4%), Białka (3,7%), Biały Dunajec (2,9%), Waksmund (2,5%), Chochołów (2,0%), Jabłonka (2,0%), Łopuszna (1,7%), Murzasichle (1,6%), Niedzica (1,6%), Witów (1,6%), et Podwilk (1,4%). Il faut aussi remarquer que, dans bien des localités rurales, on constate également à côté du tourisme de séjour, celui des excursions et des week — end. Cependant, le manque de matériaux ne permet pas d'établir le chiffre de ce type d'arrivées.

La majorité des sommes dépensées par les touristes dans la région reste dans les villes : Zakopane (73,9 %), Szczawnica-Krościenko (9,8 %) et Rabka (6,3 %). S'il s'agit des villages qui accueillent des touristes on note les bénéfices les plus importants à Bukowina Tatrzańska (2,4 % du

[6] La région comprend au total 111 localités (4 villes et 107 villages).

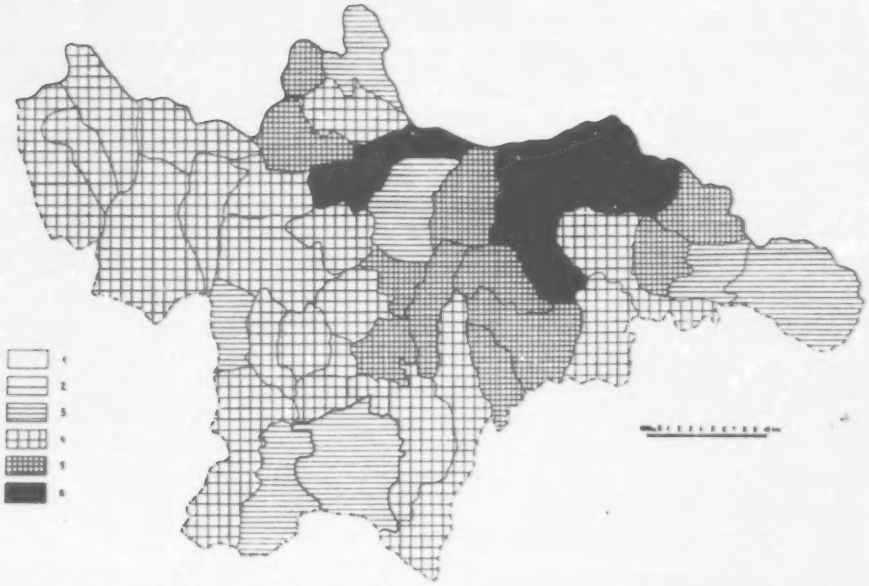
revenu global provenant du tourisme de la région, 6,8 % du powiat de Nowy Targ, 18,6 % des sommes versées par les touristes aux unités rurales) et Kościelisko (respectivement 1,2 %, 4,7 % et 13,1 %). Viennent ensuite Białka, Poronin, Biały Dunajec, Sromowce Niżne, Witów et Czorsztyn. Les 8 villages cités touchent en tout 6,6 % de tout l'argent laissé par les touristes dans la région, 22,8 % pour le seul powiat de Nowy Targ et 63,6 % des sommes touchées uniquement par les unités rurales du Podhale. La situation se présente un peu autrement quand on compte les revenus provenant du tourisme par tête d'habitant des villages de tourisme [7]. Ici c'est Czorsztyn qui atteint les plus hautes valeurs (plus de 8.000 zlotys), ensuite Bukowina Tatrzańska (plus de 7.000 zlotys), Białka et Sromowce Niżne (plus de 4.000 zl.) et enfin Kościelisko (plus de 3.000 zl.). Dans la structure globale des revenus de chaque localité, on note les plus grands bénéfices dus au tourisme à Kościelisko et à Bukowina Tatrzańska (les recettes des services rendus aux touristes se montent à plus de 50 % des revenus), à Białka et à Sromowce Niżne (au-dessus de 40 %), à Czorsztyn (au-dessus de 30 %), à Poronin, Pyzówka et Sromowce Wyżne (au-dessu de 20 %). Dans le reste des villages, la part de revenu qu'apporte le tourisme est inférieure et plus diversifiée, elle oscille entre 0,2 % et 20 %.

Mais c'est le tourisme de séjour et sortout les estivants qui apportent les plus grands bénéfices à la population (env. 82 % des rentrées touristiques). Le tourisme culturel donne des rentrées d'argent bien inférieures (env. 6 % de tous les bénéfices dus au tourisme). De plus, il faut remarquer qu'il n'a de réelle action sur la structure des revenus que dans deux localités seulement (Sromowce Niżne et Sromowce Wyżne), ce qui est dû aux sommes importantes que gagnent les batelieres employés à la descente des Gorges du Dunajec [8].

Le développement du mouvement touristique et, ce qui s'y rattache, l'accroissement des revenus des paysans du Podhale exercent une notable influence sur la construction d'habitations en plus grand nombre et sur le standard plus élevé de l'équipement de ces maisons. Le phénomène le plus caractéristique qui accompagne ce processus est que l'indice de densité du nombre de personnes par pièce diminue systématiquement (cartes 1,2). Dans les localités rurales de la région où les fonctions touristiques sont développées, ces indices sont généralement inférieurs aux moyennes du powiat de Nowy Targ, de la voïevodie ou de tout le pays, car ils n'indiquent en certains cas que moins de 1 (Małe Ciche 0,86, Bukowina Tatrzańska 0,89, Poronin 0,90, Czorsztyn 0,99 personne piéce). Bien qu'il n'y ait pas de corrélation précise entre le mouvement touristique de la

[7] Les plus grands indices de la région se rapportent aux villes : Zakopane (plus de 20.000 zl par habitant) et Szczawnica-Krościenko (plus de 9.000 zl.).

[8] Le nombre de touristes qui descendent chaque année les Gorges du Dunajec est d'env. 200.000 personnes.



Carte 1 : Moyenne du nombre de personnes par pièce dans les villes et les communes du Podhale en 1950.

1. < 1,0 pers./pièce; 2. 1,01—1,50; 3. 1,51—2,00; 4. 2,01—2,50; 5. 2,51—3,00; 6. > 3,00

Carte 2 : Moyenne du nombre de personnes par pièce dans les villes et les communes du Podhale en 1970.

Voir légende carte 1.

région et la densité moyenne par piéce (en 1970 cet indice de corrélation était, pour tout le Podhale, de 0,4), on peut cependant admettre que, dans bien des villages, le tourisme a été l'élément principal qui a fait progresser la construction locale. Les localités qui n'ont eu jusqu'ici qu'un petit nombre de touristes présentent en général les indices les moins avantageux ; on en voit l'exemple à Ochotnica Dolna et Ochotnica Górna (en 1950 respectivement 3,23 et 3,19 ; en 1960 — 2,89 et 3,13 ; en 1965 — 2,75 et 3,25 ; et en 1970 — 2,01 et 2,25 pers./piéce).

Le fait que le tourisme de séjour domine dans la structure du mouvement touristique de la région, et particulièrement dans les campagnes, a eu pour résultat non seulement le grand développement de la construction d'habitations, mais aussi l'amélioration systématique du standard de l'équipement des locaux loués aux touristes. On observe, depuis un certain nombre d'années, un accroissement de la valeur moyenne des bâtiments (en 1960 — 25.634 zl., en 1965 — 36.050 zl., en 1970 — 49.603 zl., en 1974 — 80.000 zl.), ainsi que des maisons d'habitation[9]. En 1974, dans le powiat de Nowy Targ, la valeur moyenne de ces dernières était de 109.200 zl. Bien qu'il n'y ait pas de corrélation précise entre le mouvement touristique et la valeur des bâtiments à l'échelle de toute la région (le coefficient de corrélation est 0,4), on constate que dans les villages où le tourisme est développé les maisons d'habitation atteignent la valeur la plus élevée, notamment à Murzasichle (164.400 zl.), Czorsztyn (161.800 zl.) et Bukowina Tatrzańska (160.800 zl.) ; par contre, elles sont de bien moindre values dans les villages où il n'y a pas de touristes (par ex. Podsarnie — 64.500 zl. ou Hałuszowa — 68.800 zl.) ou bien dans ceux où les arrivées sont peu nombreuses (par ex. Obidowa — 56.600 zl., Ochotnica Górna — 73.000 zl., Gliczarów Dolny — 74.200 zl.).

On observe, ces dernières années, l'accroissement de la construction dans un certain nombre de localités de la région qui ne jouaient jusqu'à présent aucun rôle dans le tourisme du Podhale. Les nouvelles maisons ont souvent le tout-à-l'égout, et la majorité d'entre elles sont équipées de manière à servir aux touristes d'un bout de l'année à l'autre. On voit un exemple de ce redoublement d'activité des villages du Podhale à Ząb qui, en 1965, n'a reçu que 130 personnes dont la moitié faisait partie des colonies de vacances pour la jeunesse. L'intense développement de la construction de maisons (en 1965 — 2,10 pers./pièce, en 1970 déjà 1,45) et les prix relativement bas du secteur tertiaire ont fait qu'en 1975 plus de 2.000 touristes y ont séjourné. De plus, la neige s'y maintient plus long-

[9] La valeur des bâtiments a été calculée d'après les matériaux de la Compagnie d'Assurances, Secteur de Nowy Targ. Les assurances se montent à env. 80% de la valeur du bâtiment. Au cours des années précédentes, on n'indiquait que la valeur de tout l'ensemble des bâtiments ; ce n'est qu'à partir de 1974 qu'on a considéré à part les divers types de ces bâtiments (habitations, communs, etc.).

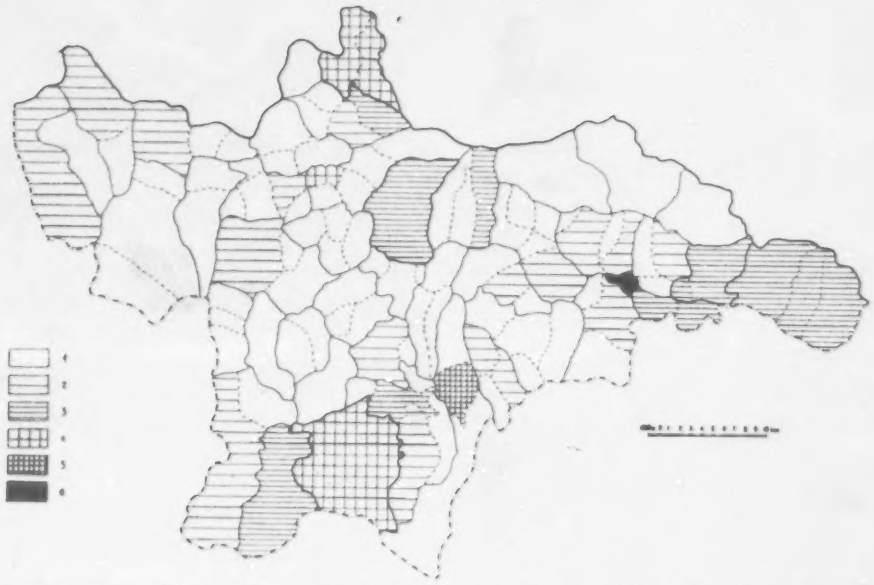
temps, les monte-pentes attirent de nombreux skieurs en hiver, d'entre ceux qui séjournent à Zakopane ou en d'autres proches localités.

Au cours de la dernière décennie, la base nationalisée d'hébergement a pris un essor considérable, tant dans les villes de la région que dans les villages touritiques (cartes 3,4). Le fait que cette base a été concentrée dans quelques localités est cause de ce que, à l'échelle de la région, son développement ne montre qu'une corrélation relativement faible avec le mouvement touristique (indice de corrélation 0,3). Il y avait, en 1974, 17,7 lits par km², ce qui indique un sensible accroissement depuis 1960 (6,8 lits par km²) et une importante accumulation par rapport aux indices de la voïevodie de Cracovie (dans la voïevodie, respectivement 5,0 lits/km² en 1974 et 2,2 en 1960). D'entre les villages touristiques, c'est tout d'abord Czorsztyn qui avait la plus grande concentration de lits en 1974 (443,3 au km²), ensuite Bukowina Tatrzańska (75,0), Pyzówka (54,0) et Poronin (39,4), Au total, on notait en 1960 l'existence d'une base nationalisée d'hébergement dans 25 villages de la région et dans 48 en 1974.

Toutefois, bien que nettement accrue, la base nationalisée ne suffit pas à satisfaire les besoins du tourisme ; aussi constate-t-on le grand intérêt porté par les touristes individuels, les agences de voyages, les organisations touristiques et sociales aux chambres chez l'habitant. On note l'offre en ce domaine dans toutes les localités touristiques de la région ; de notables réserves se trouvent aussi dans les villages qui n'ont pas encore accueilli de touristes. L'importance des chambres privées, chez l'habitant, est soulignée dans la structure générale de la base d'hébergement par les indices élevés de concentration : par km², on compte dans la région 31,6 lits, dans le powiat 28,1 à Zakopane 189,4. Le nombre des chambres chez l'habitant est particulièrement élevé dans la base d'hébergement des unités rurales. On y compte, en effet, 17,4 lits/km², tandis que l'indice de la base nationalisée est presque 3,5 fois plus petit (5,5 lits/km²). En 1965, les indices étaient respectivement de 13,6 et 1,7. Parmi tous les villages du Podhale, les plus grands indices de chambres louées par km² sont notés à Poronin : 290 lits, à Bukowina Tatrzańska : 190,7, à Czorsztyn : 166,7, à Białka : 133,3.

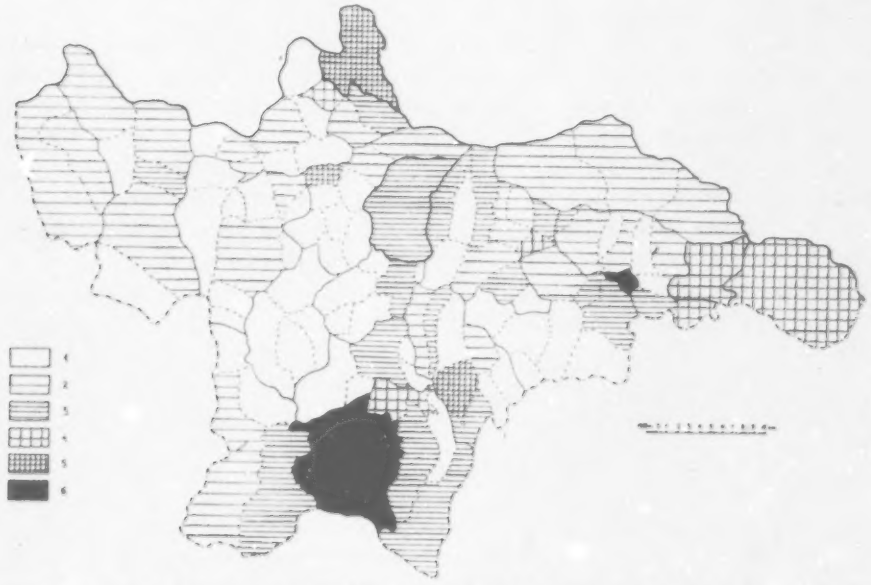
Si l'on additionne la base nationalisée et les chambres chez l'habitant (carte 5), on obtient par km² dans la région 49,3 lits, dans le powiat de Nowy Targ 28,1 lits et à Zakopane 386,7 lits. Dans certains villages touristiques, cet indice est trés élevé et dépasse plusieurs fois la moyenne de la région ou du powiat : Czorsztyn 610,0, Poronin 329,4, Bukowina Tatrzańska 265,7 lits au km².

Le développement du mouvement touristique et les revenus des habitants du Podhale qui en découlent contribuent à rehausser le rôle du tourisme dans l'économie de la région. Il semble que, dans les quelques années à venir, un grand nombre de villages du Podhale va se transfor-



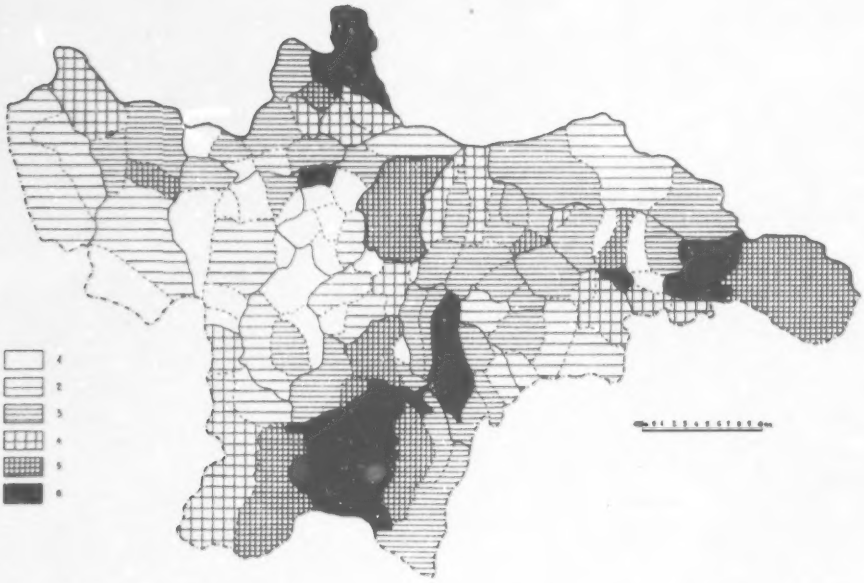
Carte 3 : Base nationalisée d'hébergement dans les localités de la région du Podhale en 1960. (Nombre de lits au km²).

1. Manque de base d'hébergement; 2. 0,1—5,0; 3. 5,1—20,0; 4. 20,1—50,0; 5. 50,1—100.0; 6. > 100,0.



Carte 4 : Base nationalisée d'hébergement dans les localités de la région du Podhale en 1974 (Nombre de lits au km²).

Voir légende carte 3.



Carte 5 : Base d'hébergement (nationalisée et privée) dans les localités de la région du Podhale en 1974 (Nombre de lits au km²).
Voir légende carte 3.

mer en unités spécialisées de séjour où les fonctios touristiques joueront un rôle dominant dans la structure de l'économie. Les plans actuels projettent d'animer le tourisme, au cours de la prochaine décennie, dans la plupart des villages de la région en se basant sur les possibilités locales d'hébergement. Les investissements, concentrés depuis bien des années dans les villes du Podhale et quelques villages touristiques plus développés (Bukowina Tatrzańska, Czorsztyn, Kościelisko) devraient être destinés à l'avenir à l'équipement touristique des unités plus petites dont le dveloppement est indispensable étant donné la nécessité de disperser le mouvement touristique de Zakopane.

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THE FUNCTIONS OF SUPPLY IN THE SPATIAL ORGANIZATION OF THE COMMUNE OF SLOVENSKA BISTRICA

Provision of goods and services is one of the basic functions necessary for human life. The importance of supply functions grows with the evolution of the human environment, gaining momentum in periods of rapid economic growith induced by increased economic opportunities and growing needs of population as well as by the greater length of the radius of its spatial mobility.

The link between Man and the town, i.e. the centre of supplies, becomes closer and their interdependence increases—which gives rise to a whole series of events and changes in space. The stronger the shopping centre, the larger is the area it services and this, in turn, generates additional supplies to that centre. People demand steadily improving services and this again leads to a revolutionary transformation of the structure and even of the physiognomy and of the location of urban shopping centres as well as to the creation of new centres, which share their functions with formerly established ones.

Moreover, the possibility of providing goods and services is also a factor promoting urbanization ; this is particularly true of supplies of numerous high-quality goods and services. Great dispersion of consumers in the extra-urban spatial structure, in the more or less urbanized areas, is an obstacle to the development of supply centres in such areas. A possibility of obtaining better supplies makes consumers prefer larger centres which might be detrimental to smaller central places. A typical example of such a situation in Slovenia is the town of Kranj, lying in the hinterland of a 25 km radius from Ljubljana. With such regional differentiation the disparities occur in the socio-economic structure of the population. Different social groups are bound to have differing needs or to possess unequal means to satisfy them, and this is—as regards supplies—expressed by the differentiated mobility.

Because of such a regional disposition of supplies as a function essential for human life, its impact on the infrastructure of traffic is strong—and vice-versa.

In Slovenia the function of supplies is rapidly developing, even if the number of people employed in commerce and the shopping floor-

-space per person is still considerably below the average in the developed European countries. The number of places having their own shops is rising and so is the number of shopping centres of various ranks; besides the structure of supplies has also improved, as it is shown in a recent study of central places in Slovenia by V. Kokole.[1] This development is clearly caused by the recent economic growth and by the increased purchasing power of the population. The standard of supplies at the micro-, mezo-, and macro- scale is rising or the size of the areas services by particular centres is increasing. This is in particular true of larger centres because of the improved accessibility. This phenomenon has been described in considerable detail by Igor Vrišer[2] in his study of the areas of influences, prepared for the purposes of the regional spatial planning of Slovenia. It should also be noted that a considerable amount of supplies exceeds the country's boundaries. People from the border zones of Slovenia shop in towns and cities across the border both in Italy and in Austria, and vice-versa. The shopping trips occur in a zone of some 15 km along the Austro-Yugoslav border, whereas the corresponding zone along the Italo-Yugoslav border is much broader for certain kinds of purchases and thus extends as far as Ljubljana and even farther eastwards.

The process outlined above has been studied in considerable detail for the territory of the commune of Slovenska Bistrica, which extends from Pohorje across the Drava plain below Maribor to Haloze on the southern boundary. The central place of Slovenska Bistrica (seat of the commune, population 3000) is located at a distance of 25 kilometres from Maribor, which is the second largest town in Slovenia (population over 100,000, one of the three macro-regional centres of Slovenia) exercising a strong influence over the commune and in particular over the area lying along the main highway and the Celje-Maribor railway line. Besides the communal centre there is on the territory of the commune a smaller centre—Poljčane (population 1,100), 10 kilometres away from Slovenska Bistrica, which is developing into a central place of a lower rank.

As regards supplies, the territory of the commune and in particular its peripheral zones is under quite a strong influence of not only Maribor but also of a few smaller centres, specifically of Ptuj (population 10,000), 20 km away from Slovenska Bistrica, and of Konjice (population 3,000).

The questionnaire used in the survey contained the following questions: what is the spatial orientation of the population from individual places and regions as regards shopping centres; what are the differences

[1] V. Kokole, *Centralni Kraji VSR Sloveniji, problemi njibovega omrezja in njihovih gravitacijskich območij*, (The central places in Slovenia, problems of their network and of their gravitation areas), in: Geogr. Zbornik SAZU, XII, 1971, p. 5—118.

[2] I. Vrišer, *Centralna naselja v Jugoslaviji* (Central places in Yugoslavia), in: Ekonomska Revija, 1968, p. 395—430.

as regard this orientation among the various sections of the population ; what is the extent in which big central places perform the supply function for the population of the peripheral zones of the commune.

As far as transport facilities and networks are concerned, and these roughly correspond to the variations in the physical geography of the commune, four specific areas within the commune have singled out :

— settlements in the Pohorje Mountains ;
— settlements along the main highway and around Slovenska Bistrica, the seat of the commune ;
— settlements along the main railway line ; and
— settlements in the southern part of the commune, centring on Poljčane.

Short-term supplies (foodstuffs) are arganized in 27 out of the 129 settlements in the commune of Slovenska Bistrica, which means that it is only every fifth settlement in the commune that has a shop. Consequently, there is quite a strong exodus of consumers to individual shopping centres, in particular to Slovenska Bistrica, where—as revealed by the questionnaire—21.8 per cent of the population buys foodstuffs, and to Poljčane, which is a secondary centre with a much smaller service area but with a more homogenous structure of consumers in surrounding settlements. Altogether 7 per cent of the respondents, mostly from the northern fringe zone, referred to Maribor as the centre of shopping ; this is mainly due to the fact that they are employed in Maribor. Another two smaller places were singled out as important shopping centres : Oplotnica, in the west, and Makole, in the east. Over 90.5 per cent of all food is purchased in the commune ; 32.9 per cent in the two main centres (Slovenska Bistrica, Poljčane), the rest in some other places in the commune.

Among the foodstuffs fresh meat was singled out because it is supplied as a specific type of short-term merchandise. In the commune, fresh meat is regularly sold only in six settlements, situated far apart—which is a sign of the overall low degree of development. The low number of centres where meat can be purchased increase the role of Slovenska Bistrica, where 41,8 per cent of consumers purchase meat, and of the secondary centre of Poljčane, with 17.3 per cent of consumers (in the two centres as much as 59.1 per cent of consumers). Since the remaining 32.7 per cent of consumers purchase meat in the remaining four centres in the commune where meat is sold, the participation of Slovenska Bistrica and of Poljčane is as regards the purchase of all other foodstuffs just reversed. Besides the large gravitation area of Slovenska Bistrica as regards the supply of fresh meat the following service areas should be mentioned : Poljčane, Makole, Oplotnica, Zgornja Polskava, and Pragersko. This is due to a much better choice of various kinds of meat in all of these centres than is the case in the choice of all other foodstuffs in the smaller shopping centres on the territory of te commune.

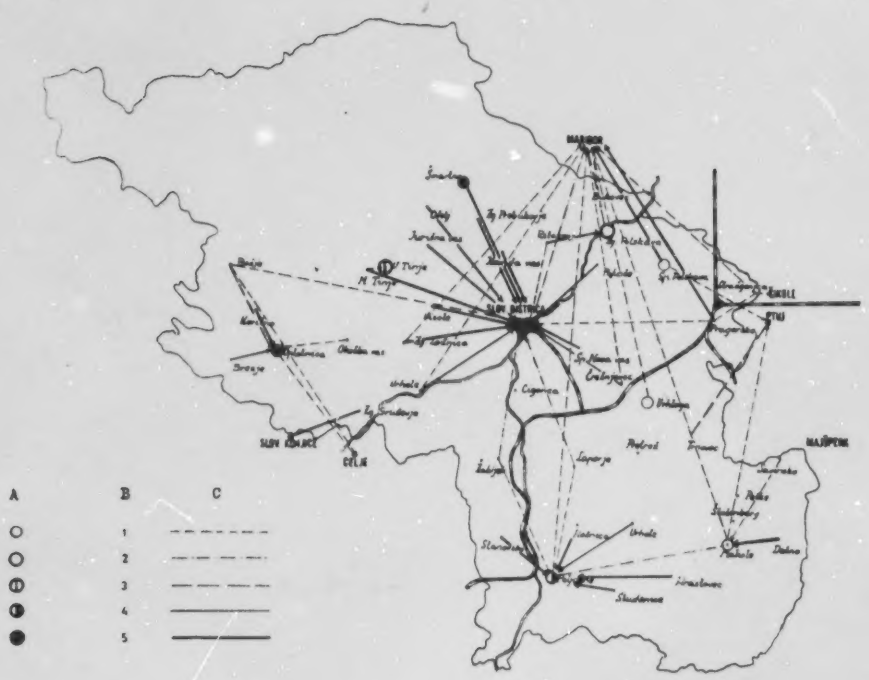

Fig. 1 Commune of Slovenska Bistrica — regional structure of purchases of household articles.

A. Purchases in the same settlement
B. Number of buyers
C. Purchases in another settlements

Medium-term supplies (footwear, household articles, farm implements, clothing) are organized mainly in Slovenska Bistrica, where ca. 50 per cent of the consumers in the commune purchase articles of this kind. Consumers purchasing this kind of articles at Poljčane occupy 15 per cent and those shopping in Maribor 10 per cent. Altogether, the percentage of purchases made in shoping centres outside the commune is as high as ca 15 per cent.

As regards the supply of clothing, the principal role is exercised by Slovenska Bistrica, which supplies articles of clothing to all the settlements of the Pohorje area and to those in the direction of Poljčane and Makole, which two places have recently started serving their own, even if very restricted, local areas. Not more than 7.3 per cent of the respondents purchase clothing in Maribor.

As regards the supplies of footwear the influence of Maribor (with 17.3 per cent of consumers) and even of Konjice (with 6.1 per cent of consumers) is much stronger over most of the commune territory whereas

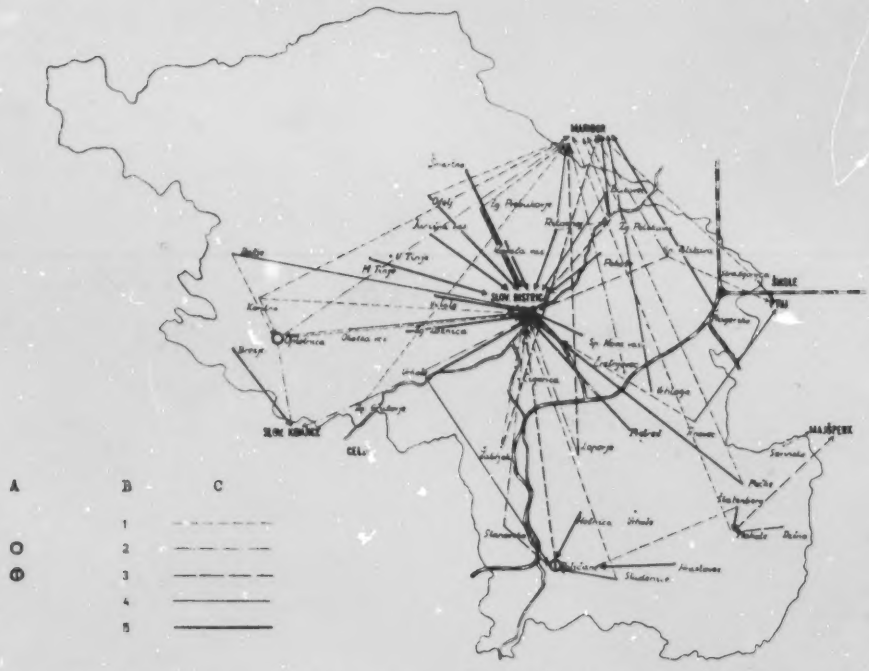

Fig. 2 Commune of Slovenska Bistrica — regional structure of cloth and clothing purchases

A. Buyings in the same settlement
B. Number of buyers
C. Buyings in an other settlement

in the north-eastern settlements it is predominant. Whereas the bulk of the supplies of footwear is organized in Slovenska Bistrica, the area serviced in this respect by Poljčane is also expanding; this depends on the available choice of articles as well as on the traditional habit of buying goods of different quality in particular places. Agricultural population and lower social groups are oriented chiefly to Poljčane and Konjice, but higher social groups towards Maribor.

The purchase of household articles shows less interference among individual service areas. The area of influence of Slovenska Bistrica is considerably narrower, including only 41.6 per cent of consumers. Like in supplies of fresh meat, independent areas of influence are emerging: Poljčane, Oplotnica, Makole. The influence of Maribor, with 11.9 per cent of consumers, is strong over the entire territory. A similar regional pattern of supplies is characteristic of the purchases of farm implements, although the participation of Slovenska Bistrica is here stronger than in the case of the purchase of household articles.

In the field of long-term supplies the participation of Maribor rises to ca. 15 per cent. A large number of the inhabitants of the commune of Slovenska Bistrica purchase commodities from this group in places outside the commune ; thus 27 per cent of them buy ready-made clothing elsewhere, the percentage for furniture is 23 per cent. The influence of Maribor is to be felt all over the territory and the interference of individual shopping centres is here much stronger than in the cases of short-term and medium-term supplies.

Among the four specific areas singled out within the commune there exist essential differences in the spatial distribution of supplies due to the already mentioned factors—landforms, causing differences in the quality of the traffic network ; unequal quality of setlements and their inhabitants ; and the entire infrastructure.

The first area includes the far-away settlements in the Pohorje Mts. where in addition to Oplotnica at the extreme western point of the commune territory there is only one more local shopping centre—Šmartno. Both of them are a considerable distance (one hour's bus-ride) away from the foothills of Pohorje or from Slovenska Bistrica. Foodstuffs are supplied by the shopping centres of Oplotnica and Šmartno, except for fresh meat which is mostly supplied by Slovenska Bistrica. Slovenska Bistrica is the dominant centre for supplying all other kinds of commodities, even if Oplotnica is emerging as a relatively independent centre with secondary gravitation to Konjice rather than to Slovenska Bistrica.

The second area lies along both sides of the main highway and includes Slovenska Bistrica, the seat of the commune. As regards the purchases of foodstuffs, there is an absolute gravitation towards the commune centre, even if fresh meat is to be had also in minor centres. The remaining medium-term and long-term supplies are understandably organized mostly in Slovenska Bistrica, whereas second in this respect is Maribor, which is largely due to the mobility of the population.

The third area is oriented as regards the purchasing of foodstuffs equally to Maribor and to Slovenska Bistrica. This area is situated along the main railway line and is by tradition strongly attached to Maribor. Since a lot of the inhabitants are employed in Maribor, the area is becoming more and more urbanized. As many as 196 respondents referred to Slovenska Bistrica and as many as 132 to Maribor as the centre of medium-term and long-term supplies ; besides, the town of Ptuj has been for a long time—and is currently even more—an important shopping centre for the agricultural population. Owing to such a shift in the gravitation, the number of people travelling to Maribor weekly exceeds that of people going to Slovenska Bistrica.

The fourth area, which includes in the south the Dravinja Valley as well as the fringes of one of the most underdeveloped Slovene regions,

Haloze, is almost unconnected with Slovenska Bistrica. The first shopping centre here is Poljčane, the second one Makole, both providing comparatively satisfactory short-term supplies. Hence, as regards these, the population relies on these two centres, but for medium-term and long-term supplies on Poljčane (263 respondents), Slovenska Bistrica and Makole (82 respondents for each), and Maribor (19 respondents).

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POSTWAR POPULATION CHANGES IN THE RURAL AREAS OF POLAND

Postwar economic and political reforms in the socialist countries of Central and Southern Europe have affected the distribution and socio-economic composition of their rural populations in various degrees.

In Poland, for example, private land property is strongly limited in many respects, although it has not been eliminated completely. Consequently, the heavy burden of feeding the nation is left almost exclusively to numerous farmers, who in a great majority own rather small farms.

Moreover, in the industrialization plans of the country the rural population has been regarded as a kind of labour force reserve, which could be used for the actual needs of industry or expanding towns.

However, neither political reforms nor state economic policy can be considered as exclusive or determining factors of population changes in the rural areas, especially in the first postwar years. For example, there were clear signs of agrarian overpopulation in many regions of the country, creating sufficiently justified motives for migrations.[1] And it should be remembered that rural as well as urban populations here were more affected by the events and consequences of the 1939—1945 war than elsewhere (loss of at least 6 million people).[2] As a result of enormous biological losses, mass deportations and resettlement of inhabitants of many regions, during and after the war, changes have occurred not only in the distribution patterns of the rural population but also in its composition by age and sex with far reaching consequences for the demographic trends in the rural areas. The overall process of the modernization of rural societies can be mentioned as a factor of change (quite independent from the remaining ones). In the past its role was less apparent ; its importance for population changes is no doubt growing.

An opinion can therefore be expressed that the particular features of changes in the Polish rural population have their origins in the fact

[1] T. Lijewski, *Overpopulation in agriculture and the localization of new industrial centers in Poland*, Geographia Polonica, 7, 1965.

[2] A. Jagielski, Ludność (in) *Geografia Ekonomiczna Polski* (Population. Economic geography of Poland), Warszawa 1973.

that these changes are a net effect of many reasonably independent factors generated by the agrarian structure of the prewar national economy, the consequences of the 2nd world war and postwar political transformations. As a final result of these events variability has greatly been intensified in almost all fields of human activity in the rural areas.

This tendency has clearly been reflected in the social transformations and in the substantial increase of the spatial mobility of the rural population as well as in changes of its reproductive attitudes and behaviour (shrinkage of the family size).

The above mentioned processes have also been reflected in the geographical space of the country. They have appeared not only as changes in the population distribution or in population densities but also as changes in the landscape features and in the spatial organization of the economy and social life of the nation.

THE GROWING DIVERSIFICATION OF THE SOCIO-ECONOMIC COMPOSITION.

Though this is a well known fact, it should be mentioned again that the identification of the rural population with that related to agriculture or even directly with the farm population is no longer justified. This identification was still correct at the beginning of the century when the proportion of the people living in the rural areas of Poland (within the 1939 boundaries) was 80.4 per cent and not less than 90 per cent of the rural population were engaged in agricultural production. Such an identification was perhaps justified in the prewar time when still 81.6 per cent of the rural population depended for their living on agricultural incomes and the remaining part mainly serviced agriculture.

This situation began to change rapidly in the postwar years. The village community has never been a social monolith, for it is internally stratified into social classes and groups. But in the past the stratification concerned a population closely connected with one basic sector of the national economy only, i.e. with agriculture. Nowadays, however, new groups have appeared in the Polish rural society which are linked to various branches of the national economy. And most of our villages have lost, at least in some regions, their old agricultural features and folklore. Moreover, the importance of the agricultural population in the country has gradually been diminishing despite the vital importance of food production for the well-being of the nation.

In 1946 68.2 per cent of the country inhabitants lived in the rural areas and just at the beginning of the industrialization period., i.e. in 1950, the proportion of rural population depending on agricultural incomes was still 77 per cent. Now, the rural areas are inhabited by 15.5 million persons, i.e. by 45.8 per cent of the total population. And it is estimated that this proportion will amount to about 42 per cent in 1980. Moreover, a slow decline in the absolute number of the rural population has

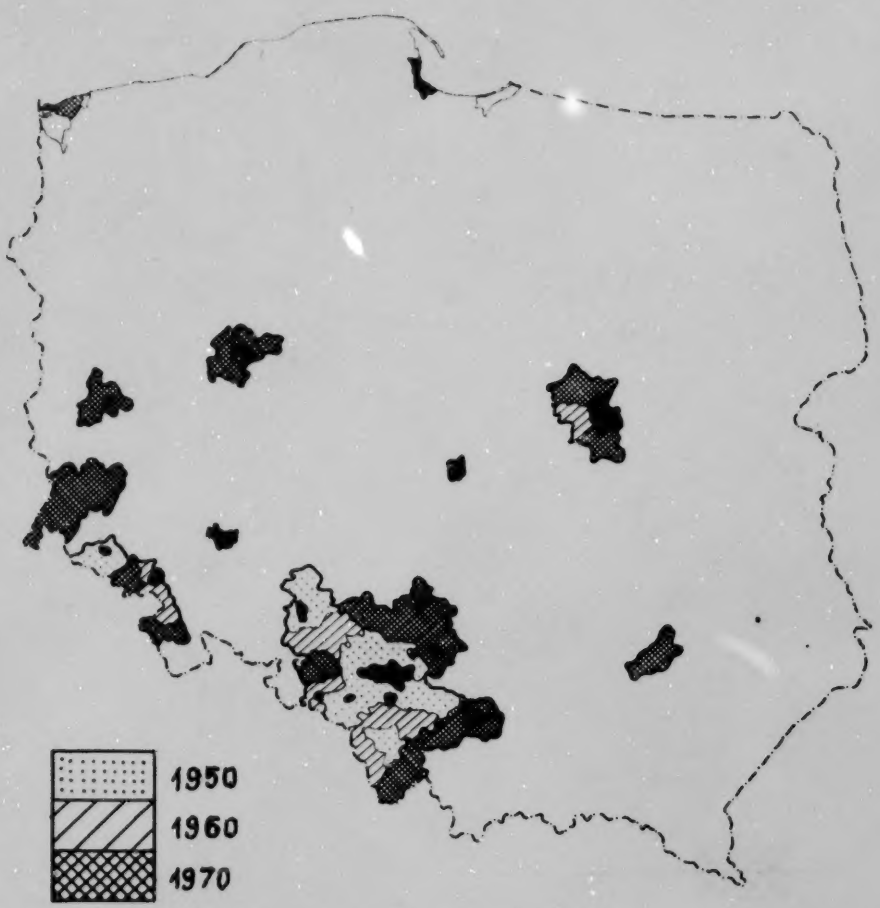

Fig. 1. Non-urban powiats with 60 per cent and more of the rural population dependent on non-agricultural incomes. Territorial increments according to successive censuses of 1950, 1960 and 1970.

also been observed for some years which cannot be attributed solely to the administrative inclusion of some rural areas in the territories occupied by the expanding towns. This phenomenon is mainly due to migrations and a lesser fertility of rural women.

On the other hand, spectacular changes have occurred in the distribution patterns of the agricultural and non-agricultural components of the rural population, as a result of the latter's rapid numerical increase. In the period from 1950 to 1973 the number of people earning their living from non-agricultural activities was more than double and increased from 3.2 million to 7.1 million, i.e. from 22.7 to 46 per cent of the total rural po-

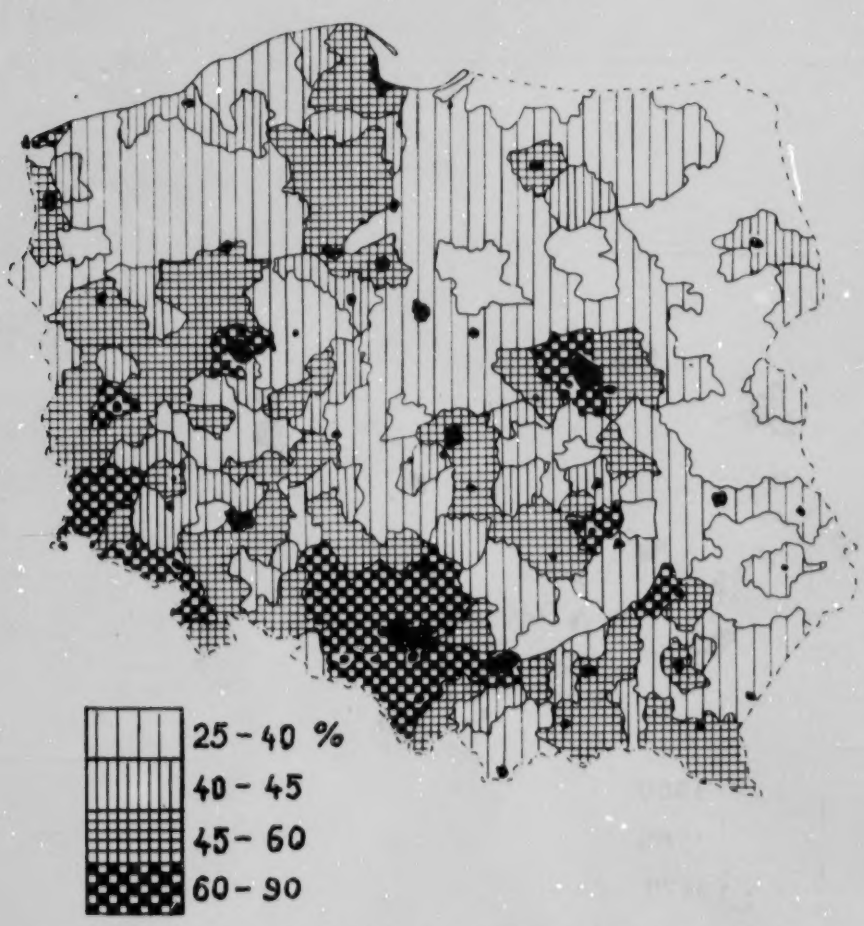

Fig. 2. Percentages of the non-agricultural population in the rural areas in 1970.

pulation. In at least 22 per cent of the total number of 49 258 rural settlement units identified in the 1970 census of the nonagricultural populations exceeded 50 per cent.[8] Such settlements have mainly developed around larger towns or industrial centres.

Assuming the proportion of 60 per cent of inhabitants engaged in non-agricultural activities in a rural settlement to be a sufficient indication of its non-agricultural character the author shows on Fig. 1 the expansion of areas in which such percentages occurred at the time of successive censuses. Powiats, i.e. the administrative units of the second de-

[8] *Narodowy Spis Powszechny 1970, Statystyczna charakterystyka miejscowości* (National Population Census 1970, Statistical characteristics of settlement units), Warszawa 1971.

gree, were used in the study as basic units (there were 317 non-urban powiats covering an average area of about 980 sq. km and an average number of 95 thousand inhabitants). Fig. 2 shows the distribution of the non-agricultural component of the rural population in 1970. This category of the rural population tends clearly to cluster around larger towns and new investment projects. Therefore, this map informs also about the potential ranges of commuting between the rural and urban settlements. Moreover, it also shows the degrees of industrialization in various regions and reveals a characteristic concentration of non-agricultural population in the south-western and central regions of the country.

The dichotomic division of the rural population into agricultural and non-agricultural components is now clearly inadequate for analytic purposes. Changes in the occupational structure of the rural working population in the period from 1950 to 1970, presented in Table 1, reveal that

Table 1. Working population in Poland's rural areas according to economic branches

	in thousands			1950 = 100		percentage distribution		
	1950	1960	1970	1960	1970	1950	1960	1970
total	8282	7963	8458	96	102	100.0	100.0	100.0
industry	716	757	1209	106	169	8.6	9.5	14.3
construction	179	230	364	128	203	2.2	2.8	4.3
agriculture	6673	6129	5655	92	85	80.6	77.0	66.8
transport and communication	174	245	355	141	204	2.1	3.1	4.2
commerce	162	163	261	101	161	1.9	2.0	3.1
education	96	134	209	140	218	1.1	1.7	2.5
health service	29	53	88	183	166	0.3	0.7	1.0

Source: Rocznik Demograficzny (Demographic Annual) 1945—1965, Warszawa 1968, p. 130.
Rocznik Demograficzny (Demographic Anual) 1973, Warszawa 1973, p. 45—46.

irrespective of the increase in the total number of the country's working population from 12 400 to 16 429 thousand (i.e. by 32 per cent), the working population of the rural areas increased by 2 per cent only. Within the same period one can observe significant occupational shifts of the rural working population from agriculture to other branches of the economy.

Needless to say Table 1 does not reflect all the social changes that accompanied the economic development. So in 1960 the working population in the socialized sector of the rural economy amounted to only 25.4 per cent of the total rural working population. In 1970 this percentage was 37.1 per cent. On the other hand, the number of individual farmers and their relatives working on the farm decreased by almost 500 thousand (from 5 830 to 5 390 thousand). A decrease was also observed among the employed in the non-socialized sector besides agriculture (from 112 to

83 thousand). In comparison with the prewar times, one of the most characteristic features of the present-day rural society is the disappearance of landless rural labourers (not mentioning the elimination of big landowners), who formerly formed a distincitive social group in the village.[4] Nowadays, the landless inhabitant of a rural settlement is usually employed outside agriculture and does not depend for his living on demand for labour by private farmers. But we would have misinterpreted the pattern of the social relations, had we not taken into account the fact that a considerable proportion of farmers has to seek some supplementary income in order to support their families.

Generally speaking, the problem of the population with two employments has arisen in the rural areas as a consequences of the industrialization of regions with a high proportion of small peasant holdings and a high density of agricultural population. This problem should, however, be approached not only from the point of view of individuals but also from the point of view of rural households, which are proper economic consumption units. The needs of their members are satisfied by incomes generated in the various branches of the economy. Such an approach makes it possible to provide a better explanation of the present-day social, economic and geographical features of the Polish countryside.

According to data contained in Table 2 among 4 millions of the rural households there were more than 1 million for which agriculture did not constitute the principal source of income. The population of the said households amounted to 22.3 per cent of all rural inhabitants. Some of their members were additionally active in agriculture. But if we compare the previously given percentage with that of the rural population depending on nonagricultural income sources, i.e. with 43 per cent, we may infer that the last category must also contain quite a large number of people closely related to farming (for example, with some of their close relatives engaged in agricultural activities). Here, it should be taken into account that about two-thirds of the rural population employed outside agriculture belonged to the households in which the relatives worked on their own holdings. From the data in Table 2 it is also evident that the households with the highest percentages of people employed outside agriculture or having supplementary employment in agriculture originated mainly from the households owning a small holding (i.e. with an area not exceeding 5 ha). A particularly high proportion of people with two employments can be found in holdings under 2 ha. Among 1619 thousand actively employed in the holdings of that category 504 thousand people earn their additional income from supplementary jobs. Such people make the core of the new

[4] J. Szczepański, *Zmiany społeczeństwa polskiego w procesie uprzemysłowienia kraju* (Changes in the Polish society in the industrialization process of the country), Warszawa 1974.

Table 2. Rural households with or without a land holding in 1970.

	total no. of households 000′	population		economically active population				non-earned incomes and farm work on own farms 000′
		total in 000′	dependant in 000′	total in 000′	actively working**			
					outside agriculture 000′	in agriculture		
						exclusiv. own farms 000′	outside own farms 000′	
total	3986	15421*	6427	8663	2875	4999	1487	232
households without a land holding	1050	3435	1879	1349	974	—	361	—
households with holding:	2956	11896	4548	7314	1901	—	1126	232
of which holdings under 2 ha	776	2831	1143	1619	789	625	359	142
from 2 to 5 ha	896	3498	1279	2188	617	1456	355	67
over 5 ha	1257	5635	2116	3495	491	2911	242	23

* 156 thousand people not included in the household population

** each columm number also includes people with more employments and cannot therefore be added to the next one to equal the total number.

Source: NSP 1970, z. 23, Struktura demograficzna i zawodowa ludności, Polska (Demographic and professional structure of population,) Warszawa 1972.

formed social group, usually named "peasant-workers", and they represent a considerable proportion of people commuting to towns.[5]

The area of 5 ha is generally accepted as a minimum enabling the farmer to support his family. But in fact the average area of a holding in Poland is 4.8 ha. There were 1.7 million holdings in Poland of that or a smaller size, i.e. 57 per cent of the total number of holdings. People living on such farms naturally show a strong preference for migration or seek additional employment. The average size of the households owning a small holding is of course smaller than that owning a large farm (3.7 and 4.3 persons respectively). Very often they are concentrated around some big industrial centres or along transport lines. Such localization of very small but very peopled holdings may perhaps be regarded as a feed-back effect of the concentration of population in towns and their fringes. This fact probably explains also why people living in holdings under 2 ha are generally younger than the population of larger farms, and that there appears also a relative surplus of women in the working age groups of

[5] M. Dziewicka, *Chłopi—robotnicy* (Peasant—workers), B. Gałęski, *Społeczno-ekonomiczna struktura przestrzenna wsi w Polsce Ludowej i aktualne tendencje jej zmian* (Spatial socio-economic structure of rural areas in People's Poland and contemporary trends of its change), (in :) Ekonomika rolnictwa i polityka rolna vol. 2, Warszawa, 1963.

20 to 59 years (i.e. 108 women per 100 men in small holdings compared with 75 in larger ones). It also appears that the average household size in the rural areas is usually larger in the villages lying not far from the urban areas and along the railway lines than in the remote villages.

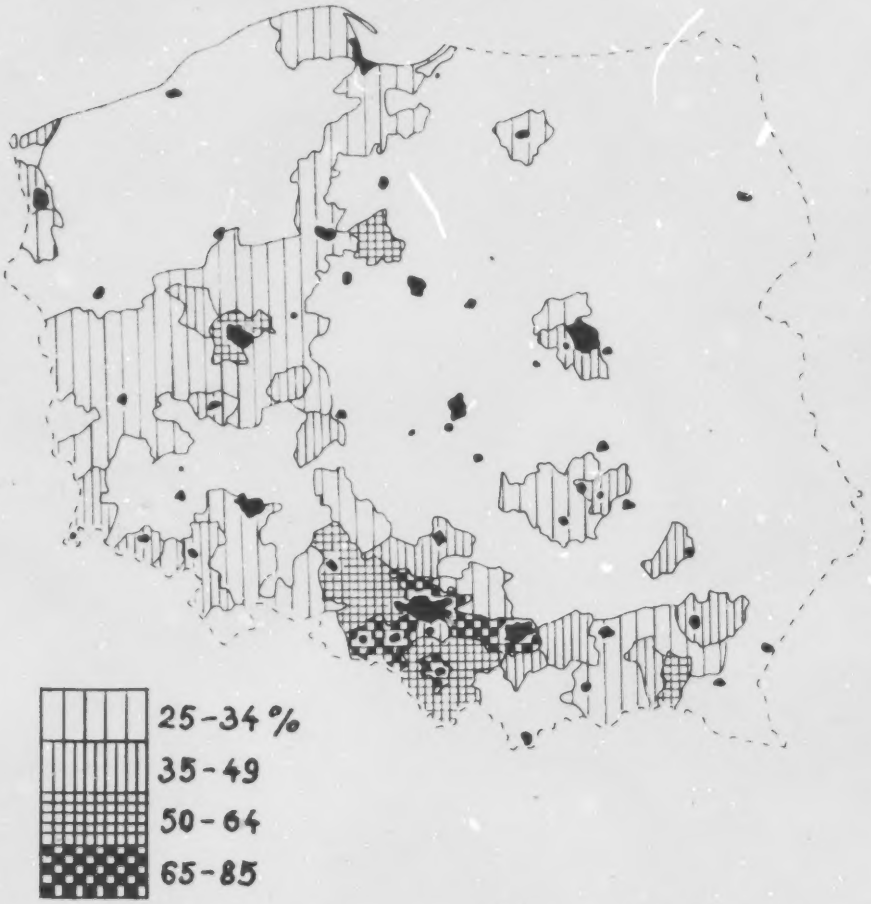

Fig. 3. Percentages of the rural population living in households with farms under 2 ha in 1970.

Fig. 3 illustrating the distribution of people living in holdings under 2 ha provides partial support for this statement. Employment in industry makes it possible to retain small holdings, though on the other hand, it also enables the farmer to get rid of some land, the exploitation of which seems to be less profitable than industrial employment. Holdings around towns and industrial centres are very often inhabited by relatives waiting for a flat in the town.

The foregoing consideration makes it possible to estimate the numerical sizes of the main socio-economic groups of Poland's rural areas according to their interrelations with agriculture. About 2.4 million rural inhabitants, i.e. about 15 per cent of the rural population, has no connections with agriculture, whereas 30 per cent (about 5 million people) maintain some weaker or stronger links. Poland's purely agricultural population amounted in 1970 to about 8 million people, i.e. to 55 per cent of the total rural population. But of the last group about 1.1 million of very small landholders actually made their living exclusively from agriculture. Here the census statistics seem to be not very reliable.

However, the description of social changes in the rural areas would not be entirely adequate if the educational and occupational problems were not raised. Though in this respect, a real progress can be noted, certain interregional discrepancies still exist. People living in rural areas have always had less schooling than those living in towns. Nowadays, illiteracy is practically non-existent in Poland and education obligatory for children up to 14 years of age makes it possible for all (not too old) rural inhabitants to complete at least primary education. Secondary or higher education is, however, not very common among rural folk. Persons with such an education amounted in 1960 to 3.7 per cent and in 1970 to 5.8 per cent of the respective rural population aged 15 or over. But in that period the percentage of people with professional training rose from 29.8 to 46.1, while the percentage of people who did not complete the six-year primary education declined. It is still high, however, comparing with the urban centres, for it amounts to 38.3 per cent in the rural areas and only to 12.8 per cent in the towns.

A distinctive, broad zone, inhabited by people with comparatively higher educational standards, is localized in the western and southern parts of the country. It extends from the voivodship of Gdańsk through Bydgoszcz, Poznań, Zielona Góra, Wrocław, Opole, Katowice, Kraków to Rzeszów. Many factors have contributed to its development, for example, preponderance of young people in some voivodships, cultural influences of big industrial centres, local traditions and a former, better developed system of education in Western and Southern Poland.

The present-day educational standard of the economically active population indicates undoubtedly that potential conditions exist for a rapid modernization of the rural areas and especially of their agricultural component. In the light of data compiled for the powiats the influence of urban and industrial centres on educational standards of the inhabitants of the neighbouring rural areas is clearly positive. But in the country as a whole still considerable spatial differences occur in that respect, because not all the areas possess a relatively numerous and well trained economi-

cally active population (indices for the powiats show ranges from 3 to 30 per cent). So it seems that the inhabitants of some regions, particularly those engaged in agriculture, are more open to modernization than people in other regions.

THE INCREASING SPATIAL MOBILITY OF RURAL POPULATION.

Three types of the spatial mobility of rural population deserve special attention, namely: charges of the place of residence, (i.e. migrations), commuting to work or to schools, and trips to administrative, shopping or cultural centres. Here we shall deal only with migrations.

As already pointed out Poland was a scene of mass migrations during and just after the last war. Subsequently, migrations have become less intensive, though they still influence the labour force economics and the spatial redistribution of the population as well. The factors that generate were rural migrations: agrarian overpopulation, compulsory migrations and resettlements as a consequence of the war and of the postwar changes in Poland's boundaries, the changing migration policy of the state, as well as the aspirations of the younger generation in the rural areas.

In the prewar time the "surplus" agricultural population was estimated at several million people. Even now it is believed that some relative surpluses of the rural labour force exist in some regions and amount to about 1 million people.[6] It is assumed that such reserves should mainly exist in the regions with a dominance of smallest holdings and consequently the highest densities of agricultural population. Such regions lie mainly in the south and in the south-eastern corner of the country (as shown on Map 4). As many new industrial plants have recently been built in these regions, the emigration has partly been stopped, whereas the number of people commuting to work within the region has increased (in the Subcarpathian voivodships, for example).

Two migration types have had a significant impact on the spatial pattern of the population distribution in the country, namely: (1) migrations in the period from 1945 to 1949; they were aimed at resettling and redeveloping the western and northern parts of the country, heavily depopulated during the war, and (2) rural-urban migrations during the whole postwar period. Resettlement migrations included whole families and single people as well, mostly from the younger generation. The western and northern territories are, therefore, populated by comparatively young and dynamic people both in terms of their demographic characteristics as well as in terms of their economic activities. But as far as rural migrants

[6] F. Tomczak, *Rolnictwo Polski Ludowej* (The agriculture of People's Poland), 2nd ed., 1972.

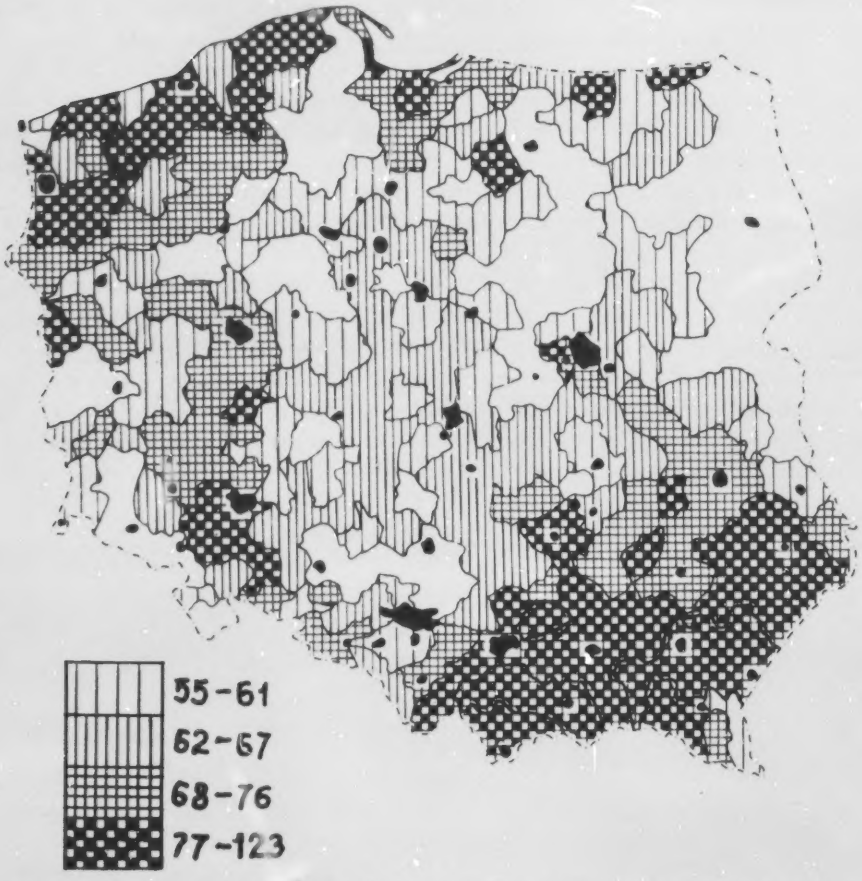

Fig. 4. Agricultural population densities per 100 ha of agricultural land in individual farming, 1970 (each category is represented by approx. one-fifth of the total number of non-urban powiats).

are concerned, only a part of them settled in villages, most of them preferred towns.[7]

The heavy outflow of migrants from the rural areas in the early 1950'a was stimulated by various administrative pressures, which were withdrawn after 1956. In some more recent periods the opposite restrictions were imposed to check uncontrolled population movements.

[7] *Ruch wędrówkowy w Polsce w latach* 1960—67 (Migrations in Poland in the years 1960—67), Warszawa 1969; T. Stpiczyński, *Wewnętrzny ruch wędrówkowy ludności* Polski (Internal migrations of Poland's population), GUS, Warszawa 1971; L. Kosiński, *Migracje ludności w Polsce w latach 1950—1960* (Migrations in Poland in the years 1950—1960), Warszawa 1968.

Mass migration for resettling purposes as well as rural-urban movements have affected mainly the central, eastern and southern parts of the country. The former landless rural workers and the owners of small holdings were first to move, but the dominant role was played by the rural youth, for which the developing industrial centres and educational opportunities offered in the cities, provided new careers and attractions. In the fifties the population of rural origin exceeded, in many towns, even the urban "natives", and dominated in some occupations and professions (in the army and militia, for example).[8]

According to 1970 census 38.8 per cent of the urban inhabitants were born in the rural areas. Among the newcomers to towns this percentage was even higher (39.1) in the period from 1961 to 1970. This fact points to the growing importance of rural migrations for the population growth in urban areas, where the natural increase rapidly declined.

Since 1960 migration losses in the rural areas because of emigration to towns have increased (see Fig. 5 and 6) as the outflows of people have

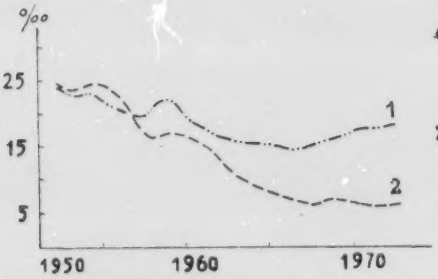

Fig. 5. Intensity of emigration and immigration in the rural area (per thousand of rural population).
1. emigration to towns, 2. immigration from towns

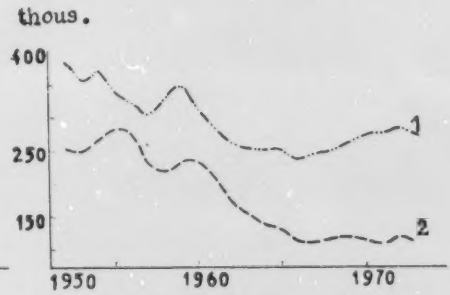

Fig. 6. Emigration and immigration in the rural areas (in thousand).
1. emigration to towns, 2. immigration from towns.

become bigger and the inflows to the rural areas have decreased. One of the causes of such a development was the increase in the number of young people, born in the fertile postwar years, for which towns were specially attractive. The registered population displacements from the villages to the towns amounted to at least 13.2 million people in the period of 1952 to 1972. This made about 50 per cent of all residential changes registered in the rural communes (gromadas). The net migration effect was represented by a loss of 2.5 million people. Including the migrations prior to 1952 and the transfers caused by changes in the legal status of the settlements (inclusions of the rural areas in the urban areas) the total number of migration losses in the rural areas can be estimated at 6 to 7 million people.

[8] M. Pohoski, *Migracje ze wsi do miast* (Rural-urban migrations), Warszawa 1963.

The rural migrations in the postwar years are characterized by :[9]

1. Massive resettlement migrations to the western and northern parts of Poland until 1950, subsequently replaced mainly by migrations to towns and expanding industrial districts. In consequence, the categories and the composition of the migrants have also changed.

2. Migrations between rural settlements slightly bigger than, or equal to, those to towns until 1973 with, however, intrarural migrations declining since 1956. In the rural-urban migrations the most preferred cities were those with more than 100 thousand inhabitants, and secondly the towns with less than 20 thousand people. Now, the towns with 20 up to 50 thousand have replaced the smaller ones. Such places have absorbed about 50 per cent of the total rural-urban movements (approx. 130 thousand people per year).

3. By the end of the last century E. Ravenstein came to the conclusion that females were more mobile than males. His observation has been corroborated in the course of time. In 1952—53, for example, there were 104 female migrants to 100 males, but this proportion changed to 117 females to 100 males in 1971—72. One should bear in mind, however, that in Poland in 1950 women, as a result of heavy war losses in the male population, largely outnumbered men (113 women per 100 men). Now this proportion is 106 to 100. It may be concluded therefore that there were no real female surpluses among migrants before 1960.

4. Changes in the motives of migration and in the directions of movements were accompanied by changes in the age composition of the migrants, who influenced profoundly the demographic conditions in the rural as well as urban areas. In the early stages of industrialization there were marked concentrations of migrants in the age group of 15 to 24 years (43.3 per cent in 1952—1953). However, with a gradual stabilization of the internal migration flows the participation of the more advanced age groups increased, especially in the case of women. The percentage of the 15—23 age group has recently been not higher than 26.0, and a similar age composition has been discovered for migrants who have returned to the rural areas ; moreover return-migrations of people above 60 have intensified.

5. Migrations are not evenly distributed over the territory of the country. With a few exceptions the rural areas are characterized by steady migration deficits. But spatial movements are composed of both outflows and

[9] See also: Z. Zaremba, *Czynniki kształtujące wędrówki wieś—miasto ze szczególnym uwzględnieniem warunków ekonomicznych i socjalnych* (Factors affecting rural-urban migrations with particular consideration of social and economic conditions), Studia Demogr. 11, 1966; K. Sokołowski, *Odpływ ludności ze wsi* (Outmigration of population from the countryside), Warszawa 1961; A. Stasiak, *Problemy „płynności" ludności wiejskiej.* (Problems of the "fluidity" of the rural population). (in:) Ludność GUS, Warszawa 1972; A. Jagielski, *Geografia ludności* (Geography of population), Warszawa 1974.

inflows of population, they consist of a continuous exchange of people. In consequence there exist regions with weak and with intensive migratory movements. The latter group consists of regions where the younger generation is comparatively well represented in the local population (for example, in the northern and western territories).

The intensity of spatial mobility may be measured and presented in various ways. Map 7 shows the percentages of people who arrived in a gi-

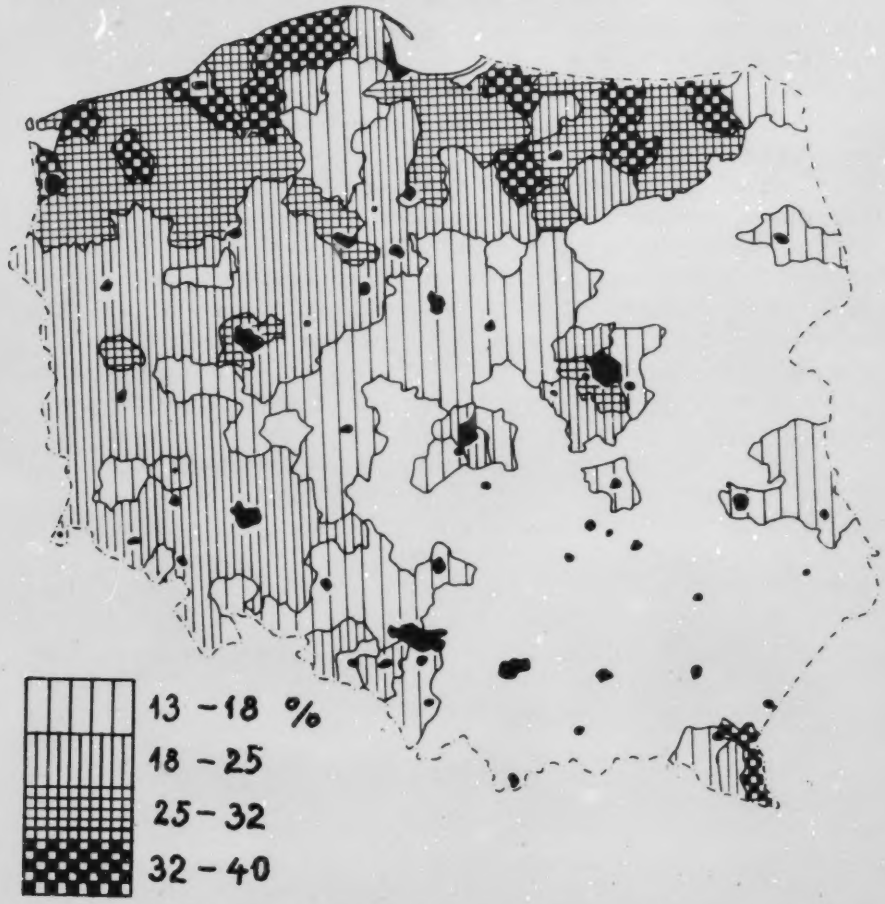

Fig. 7. Population residing in the rural areas for less than 10 years according to the 1970 census (excluding locally born children).

ven rural area sometime during the 10 years before the last census. It does not reconstruct the migration flows exactly, but it provides some information on the stability of the local population in relation to immigration. The vast territories of Eastern, Central and Southern Poland, which in

the past were characterized by intensive emigration are at present characterized by very weak internal movements of the population. The most intensive migratory turnovers seem to appear in the north and in the areas around certain cities. But in fact, these are mainly intra-rural migrations because—in the light of the data from the 1970 census—about 80 per cent of immigrants into a rural area came from another rural area. Map 7 shows therefore mainly the intensity of redistribution movements of population in the rural areas.

6. In the last years the indices of migratory losses have increased in the western and northern territories, which until recently were inhabited by a rather young population. The role of the former emigration regions, like the voivodships of Kielce, Lublin, Kraków, began to decrease.[10] The shifts in the regional rural migration losses by voivodships are ahown in Table 3, which also includes an official projection of expected deficits up to 1980 (See Fig. 8).

7. Changes in the composition of the rural migrants are highly interesting. The migrants, who previously depended solely on the agricultural sources

Table 3. Migration losses in the rural areas, existing and planned, by voivodships (percentage distribution).

voivodship	1951—55	1956—60	1961—65	1966—70	1971—75	1976—80
Total in thousands	628.3	419.7	502.9	697.7	960.0	1210.8
total per cent	100.0*	100.0	100.0	100.0	100.0	100.0
Białystok	7.4	8.5	6.5	7.0	6.2	4.8
Bydgoszcz	8.9	4.4	5.2	5.5	6.5	5.8
Gdańsk	2.2	3.5	2.1	3.0	2.7	3.2
Katowice	2.9	0.6	1.2	1.1	2.2	2.9
Kielce	14.8	16.7	14.7	10.7	10.6	9.4
Koszalin	2.3	3.9	4.3	3.5	3.4	2.5
Kraków	9.9	7.7	9.6	8.8	8.2	9.4
Lublin	10.1	10.7	10.5	10.0	9.4	7.8
Łódź	9.7	3.1	6.8	7.3	7.1	7.0
Olsztyn	+	5.2	3.9	4.7	4.4	4.3
Opole	3.6	3.7	2.2	3.1	2.0	3.0
Poznań	13.7	3.8	8.0	7.6	8.1	7.8
Rzeszów	7.0	4.5	4.2	5.2	6.7	8.2
Szczecin	+	3.4	2.5	2.5	1.8	2.3
Warszawa	6.2	9.9	9.2	8.0	10.2	12.5
Wrocław	1.6	6.3	6.1	8.3	8.4	6.2
Zielona Góra	+	5.1	3.0	3.7	3.1	2.9

* the actual no. of rural emigrants was 646.8 thousand, but the rural areas marked by + had some net surpluses of immigrants.

source: computations based on data compited as explained in note no. 11.

[10] B. Welpa, *Migracje i niektóre ich aspekty demograficzne* (Migrations and some of theirs demographic aspects), Studia Demogr., 38, 1974.

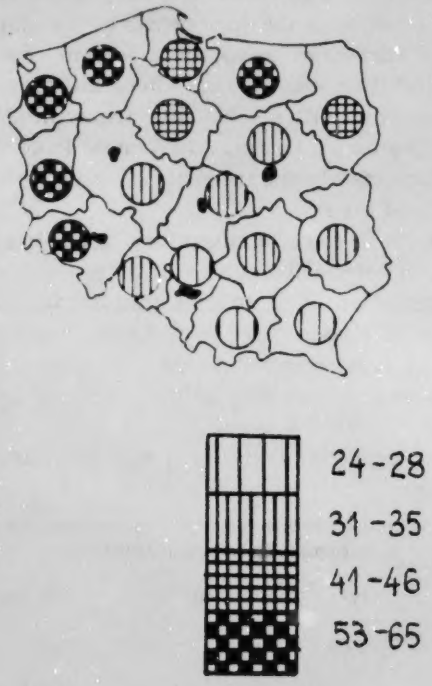

Fig. 8. Intensity of rural emigration by voivodship (per thousand of rural population), average for 1971/1972.

of income, amounted in 1968 to 37.2 per cent of Poland's all rural migrants. But in 1973, this percentage fell to 29.2. Only in the intrarural movements the ratio of non-agricultural to agricultural migrants was 1 : 1. It follows that in rural areas the most mobile part of the population is that belonging to the non-agricultural category.

8. Because of the heavy emigration of young people the rural population has begun to age rapidly. This fact has an important bearing on the whole agricultural sector and on the perspectives of the individual landholdings as well. The number of people aged 60 or more increased in the period 1950 to 1973 from 1.3 to 2.3 million, i.e. from 8.5 per cent to 14.1 per cent of the total rural population (in comparison with 13.7 per cent for the whole country). Changes in the age composition are shown in Fig. 9.

More striking contrasts appear when on compares the age composition of the rural population working in agriculture with that of the total

of the population employed in other sectors of the economy. Thus, in 1970 5.7 million rural inhabitants were employed in agricultural activities; 1.3 million of them (i.e. 23.3 per cent) were aged 60 or over. The non-agricultural sectors employed then 10.3 million, but only 401 thousand, i.e.

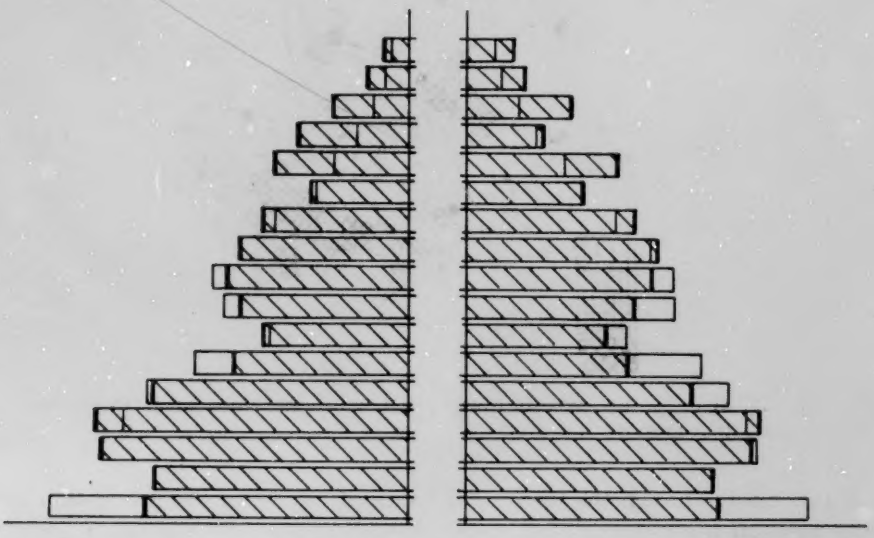

Fig. 9. Rural population by age and sex in 1950 and 1970 (1970 shown by hatched areas).

3.9 per cent, belonged to the older age group. The population crisis in the rural areas is also exemplified by the decline in the number of the 18—24 age group, which in 1970 fell to 62 per cent of the 1950 figure. The aging of population is especially apparent in the traditional regions of emigration. In this respect two contrasting territories are shown in Fig. 10. The older farmers very often inhabit the areas with considerable percentages of people engaged in industrial activities (for example, in the neighbourhood of the towns).

Another consequence of the aging of the rural population is an increased economic activity of people who in the urban areas either are not yet employed because of young age, or are retired. In the period from 1960 to 1970 the indices of professional activity of the non-agricultural population in the postworking age group decreased from 13.2 to 12.3, while in agriculture they increased from 74.3 to 82.7. This comparison exem-

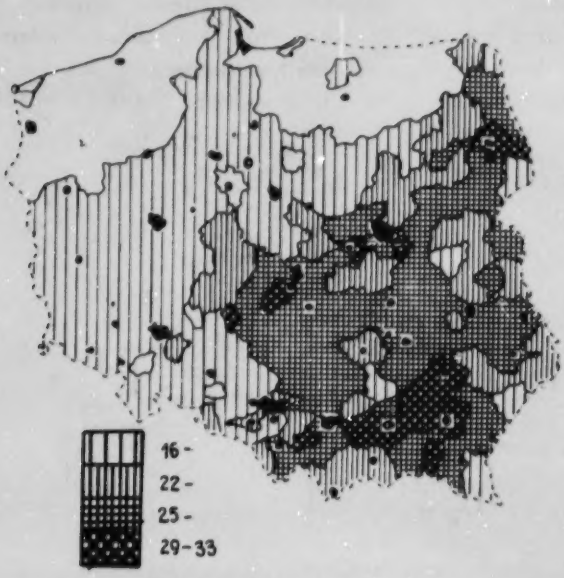

Fig. 10. The aging of the agricultural population in the rural areas (percentages of the population aged 60 and over).

plifies clearly enough the unequal division of efforts in the production of the national income.

The median age is still lower in the rural areas than in the towns (26.4 and 28.1 years respectively), but this average increases in the rural areas more rapidly than in the urban areas because of selective migrations of young people and the declining fertility of rural women. The discrepancies in the median age between the voivodships have become greater and amount to over 10 years while twenty years ago they amounted to 4 years only.

CHANGES IN THE REPRODUCTIVE ATTITUDE AND BEHAVIOUR OF THE RURAL FAMILIES.

The emigration of young people and the urbanization processes have brought about a decline in rural fertility. It is true that on the average the rural families have still one child more than the urban ones, but the family size was also diminished in the rural areas. As shown in Fig. 11 urban and rural trends in fertility have decreased almost in the same way, under the impact of some as yet not well known factors. The direct cause for these trends has undoubtedly been the heavy fall in the relative numbers of live-births among married women in the age groups above 25, i.e. in the ages when women decide to have a second or a third child (see Figs.

12 and 13). It may therefore be concluded that the planning and controlling of the family size is already widespread among Poland's rural families.

However, various socio-economic groups differ also in this respect. For example, according to the 1970 census, women working in agriculture gave birth to 3.26 children on the average, but those employed in other sectors to only 2.14.

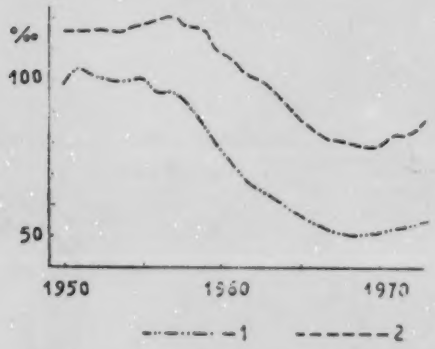

Fig. 11. Rural-urban differentials in the general fertility rates. 1. urban areas, 2. rural areas.

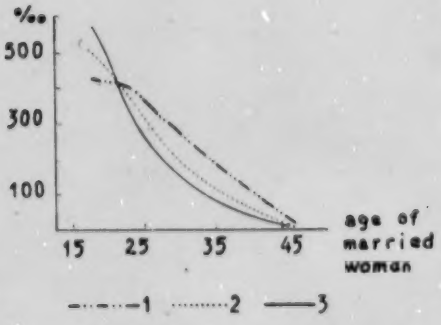

Fig. 12. Changes in the legitimate fertility rates (per thousand married women). 1. 1950, 2. 1960, 3. 1970.

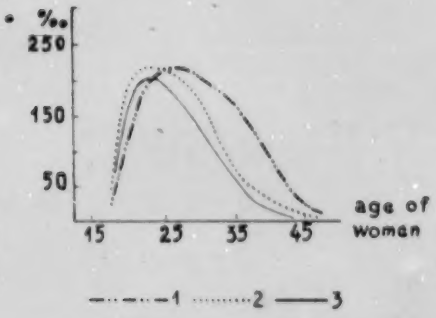

Fig. 13. Changes in the fertility rates of women (per thousand women). 1. 1950, 2. 1960, 3. 1970.

There still exist considerable areal differences with respect to either the family size or the average level of birth-rates and fertility although they are less significant than twenty years ago. The lowest fertility exists among women in the most urbanized regions (for example in the Katowice or Opole voivodships ; 2.6—2.8 children per women', the highest—among women in northern territories (3.45—3.75 children). Low fertility appears also in the regions with heavy emigration. Fertility differences are illustrated in Fig. 14, which shows the areal variation in the fertility rate (number of children aged 0—4 to women aged 15—49), and at the same time the burdens brought about on women in the working age groups, who rear small children.

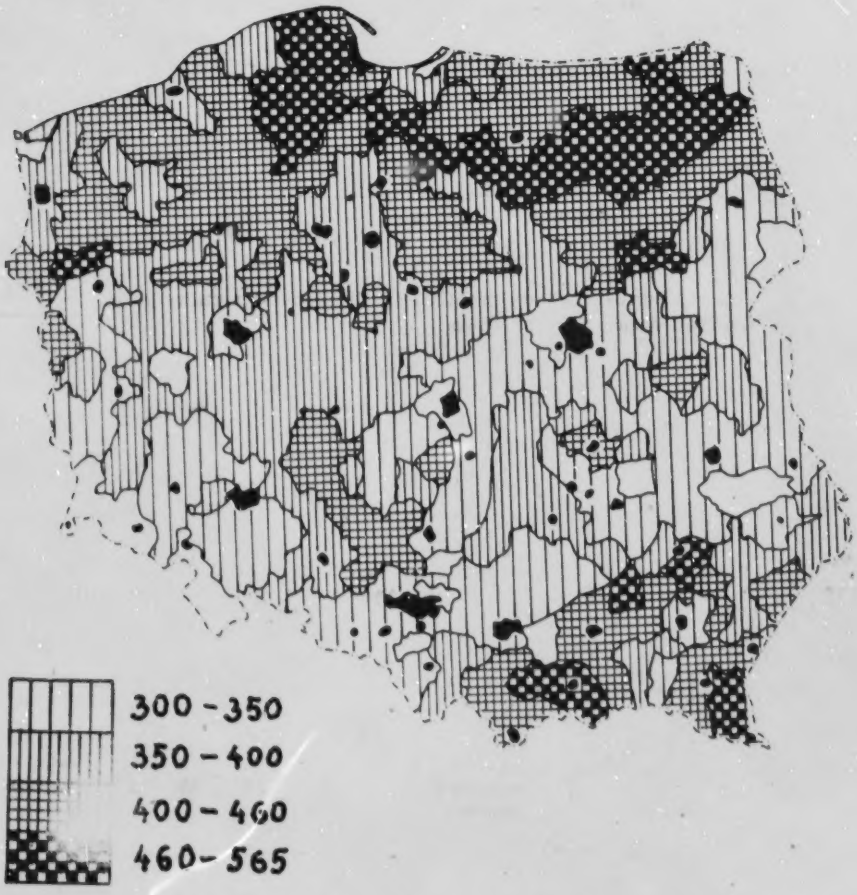

Fig. 14. Areal differentiation of effective fertility rates in 1970 (no. of children aged 0—4 to women aged 14—49).

The rural areas remain still the main source of the country's natural increase. In the years of 1948 to 1973 10,133 thousand children were born in the rural areas, while 7,232 thousand in the urban areas. The natural increase was 6,286 thousand people in the rural areas compared with 4,359 in the towns. But in the same period the urban population increa-

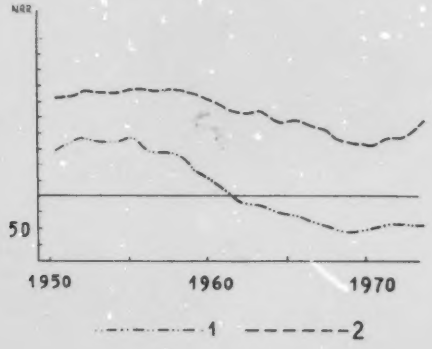

Fig. 15. Evolution of the net reproduction rates in the rural and urban areas. 1. urban areas, 2. rural areas.

sed from 8.1 million to 18.1 million. This development was possible only because of the absorption by the towns of the equivalent of the whole natural increase in the rural areas by way of immigration.[11] Now, only the rural areas guarantee a further population increase. As shown in Fig. 15 only the rural areas are characterized by net reproduction rates above 1, while the urban ones cannot grow on their own. But the reproduction rates are also on the decline in the rural areas (with short-time interruptions) (Fig. 15).

Conclusions

This paper attempts to draw attention to some population problems in the rural areas. The rural community is subjected now to profound social, economic and demographic transformations. It loses rapidly its social and spatial coherence and homogeneity. An overall increase in the variability of attitudes and behaviour of rural people is also reflected in the geographical space by discrepancies in the spatial patterns of various population characteristics. None of the discussed problems in its spatial pat-

[11] A. Jagielski, *Urbanizacja i spadek płodności w miastach* (Urbanization and the urban fertility decline), Studia Demogr. 39, 1975.

terning corresponds entirely to patterns identified by their physical, land--use or agricultural features. The complex genesis of changes affecting the rural population and a rapid progress in the urbanization and industrialization of the country, which coincide with the final stage of the demographic transition, make the spatial pattern of population characteristics more intricate. Under these circumstances it is difficult to make an appropriate typology and regionalization of the rural population in Poland.

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THE TRANSFORMATIONS IN THE AGRARIAN STRUCTURE IN POLAND 1945—1970.

The agrarian structure after World War II has been transformed under the influence of the following four factors : the agrarian reform of 1944, resettlement of the new recovered territories, industrialization processes, and agricultural policy of the State.

The agrarian reform eliminated the unequal division of land that had characterized land tenure pattern before the war, when almost half of the land belonged to big land-owners accounting for less than 1 per cent of Poland's rural population. As a consequence of the agrarian reform holdings of over 50 ha of arable land and in the western territories of over 100 ha of agricultural land together as well as former German land holdings were taken over by the State. Out of 9.8 million hectares thus acquired about 6.1 million hectares were distributed among peasants and state farms were organized on the remaining land. As a consequence of the reform, in 1950 new farms accounted for over 25 per cent and farms enlarged in size for over 8 per cent of the total number of individual land holdings.

The spatial differences of changes brought about by the agrarian reform was influenced by differences in the historical past of the separate parts of Poland. In result medium-sized farms, owned by private individuals, with an average size of 7.3 ha, predominated in the new settled western and norther territories, while medium-sized and small holdings, with an average size of 4.9 ha, occurred side by side in the central and eastern parts ; small farms (the average size amounting to 3.2 ha) were most frequent in the south-eastern part of Poland, and their average size was almost two times smaller than elsewhere in Poland.

The agrarian reform played also an important role in the formation of the socialized sector of agriculture ; state and colective farms occupied 10.4 per cent of the total agricultural land in 1950.

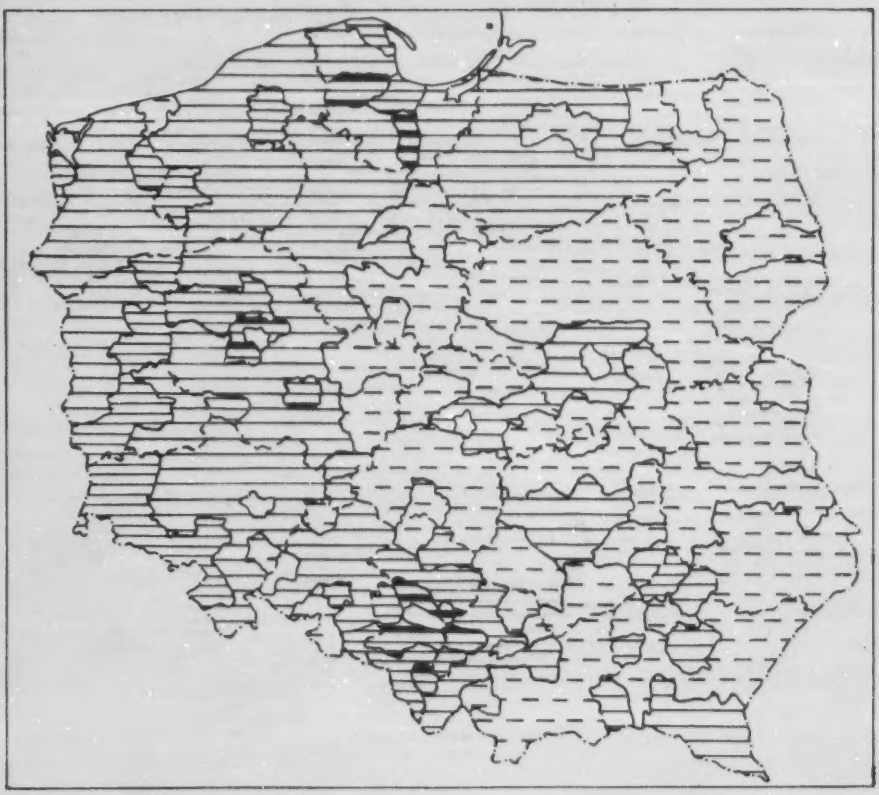
The socio-economic development after World War II, induced by rapid industrialization, has opened new opportunities for the rural population and started intensive migrations to work in non-agricultural branches of the national economy. Between 1945 and 1970 over 4 million pe-

ople in productive age moved to towns. The percentage of the urban population in the total number of inhabitants increased from 34.0 per cent to 52 per cent in 1970. The decrease of the percentage of the rural population in the total number of inhabitants was even less rapid than the decrease in the number of the agricultural population, while the population earning its living in non-agricultural occupations steadily increased (in 1950 it accounted for almost 23 and in 1970 for almost 40 per cent of the total rural population).

In the decade 1950—1960, which was a period of rapid industrialization in Poland, new changes occurred in the socio-economic structure of the rural area. A number of holdings were subdivided and new ones were called into being; certain other, changed into part-time holdings or their owners joined collective farms. A characteristic feature of that period was an increase in the number of new holdings (9.3 per cent); they were usually small in size, under 2 ha, and were mostly parts of subdivided bigger farms. The occupiers of over two-third of them generally had another source of livelihood besides farming. This phenomenon was principally caused by rapid industrialization, which induced outflows of labour from agriculture to other branches of the national economy. Figs. 1 and 2 contain maps showing the proportion of the part-time farmers in the total labour force and its spatial distribution in that decade. The influence of such large numbers of bi-occupational population upon the socio-economic structure of Polish villages was quite great. When the owner drew most of his income from other sources than farming, his farm slowly transformed into an ancillary lot on which some crops were grown and some animals raised mostly for their owners subsistence. This in turn affected the character of agriculture in the area where part-time holdings were numerous, alongside with traditional subdivision of land among the inheriting relatives, a fictitious subdivision of holdings was also practised in that period as a kind of self-defense against the then-existing progressive taxation with the growth of the area of a farm. The effects of such taxation were negative and brought about a tendency to decrease the size not only of big but also of medium-sized holdings.

According to the 1960 census the number of holdings over 15 ha decreased by 20 per cent. At the same time, the size structure of private farms deteriorated. The percentage of holdings with under 2 ha of agricultural land increased from 4.8 per cent in 1950 to 6.5 per cent in 1960. The average size of private holdings fell from 5.53 to 5.15 ha.[1] A big increase in the number of small part-time farms changed also the socio-economic structure of private agriculture, as it induced changes in their earnings and in the level of their standard of living.

[1] A. Szemberg, *Zmiany w układzie przestrzennym struktury agrarnej w Polsce* (Changes in the spatial pattern of agrarian structure in Poland), IER, 1974, p. 5.



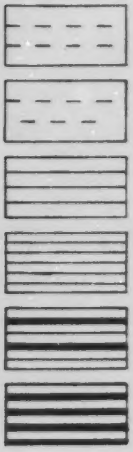


Fig. 1. Part time farmers in 1960 as a percentage of all farmers.
1 < 5, 2 — 5—10, 3 — 10—20, 4 — 20—30, 5 — 30—40, 6 > 40.

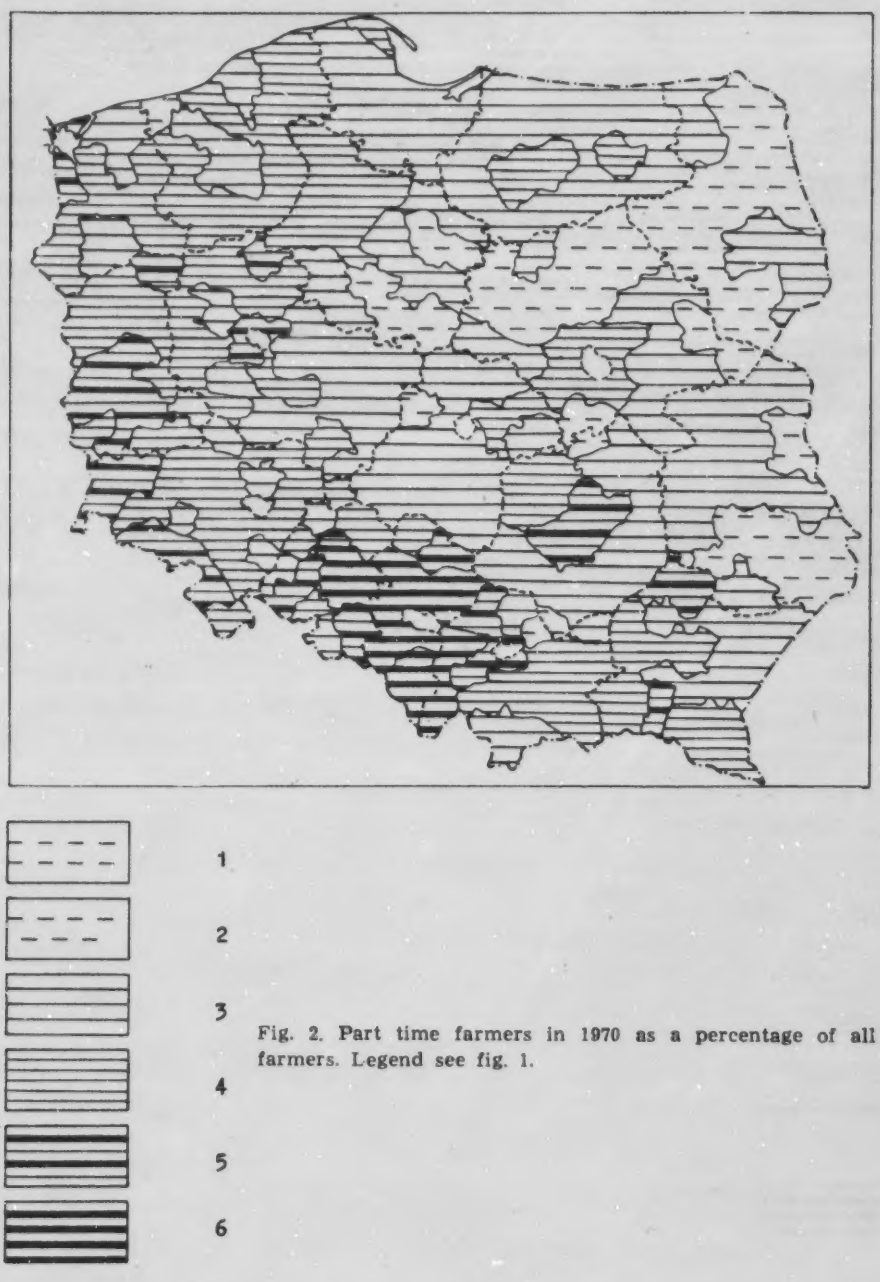


Fig. 2. Part time farmers in 1970 as a percentage of all farmers. Legend see fig. 1.

A new agricultural policy, carried out by the State in the next decade, i.e. from 1960 to 1970, was more favourable for the transformations of the agrarian structure of Polish villages. The subdivision of farms was largely reduced by regulations concerning inheritance rights and the sale of land property, included in the 1963 Act. At the same time opportunities were made for elderly farmers to give up the holdings for a pension, etc. As the changes were accompanied by higher inputs allotted to agriculture and by increased profitability of agricultural products, new transformations in the size structure of private holdings took also place.

The most important change was an improved size structure of private farms and a former trend of subdivision of farm holdings has been reversed. First of all the number of farms ceased to grow : 3,399 thousand in 1970 as compared with 3,591 thousand in 1960. In 1960—1970 the percentage of decrease in the total number of holdings was 5.4 while in the former decade, 1950—1960, an increase by 13 per cent had been registered. The average size of a farm increased by 4 per cent.

Under such circumstances the deconcentration of the structure of private holdings was replaced by its slow concentration. A characteristic feature of this process was a more rapid increase (by 13.4 per cent) in the number of farms in the size group from 2 to 5 ha than in that under 2 ha, and much slower in that from 5 to 10 ha.

The improved size structure of private holdings induced changes in its spatial pattern. From the viewpoint of intensity of changes three areas can be differentiated. For instance, the average decrease in the number of private holdings in Poland in 1960—1970 was 6 per cent, but in south-eastern part of the country, where small holdings predominated, this percentage was only 4 per cent. The percentage in central and eastern Poland was slightly higher (9 per cent) than the average, the highest (12 per cent) was in western and northern Poland, where, moreover, the share of private farming diminished, with the decrease in the land area only slightly lower than that of the number of holdings. The extent of changes in particular size-groups of farms was unequal.[2] The highest percentage of decrease (twice as high as in the remaining area of Poland) for the groups : from 0.5 to 2 ha and from 2 to 5 ha was registered in east-central Poland. In the group from 5 to 10 ha the process was highly uneven : every 16th holding disappeared in east-central Poland, every 7th—in central Poland, and every 4th—in western and northern Poland. The situation in the group of holdings over 10 ha was also highly differentiated : in southern and eastern Poland the number of such holdings increased, whereas a slight decrease was registered in the remaing area.

[2] A. Szemberg, op. cit., pp. 45—57.

The improved structure of private holdings in central and north--western Poland was accompanied by a simultaneous decrease in the number of holdings in all size groups. Contrary to what happened in the remaining part of the country the number of holdings decreased more rapidly and there was no increase in the group over 10 ha.

Irrespective of the short period in which the discussed changes had taken place they brought about greater differences in the size structure between south-eastern and the remaining parts of Poland. Maps (Figs. 3, 4, 5) of leading categories of the size of agricultural holdings owned by private individuals present the distribution and changes in their size structure.

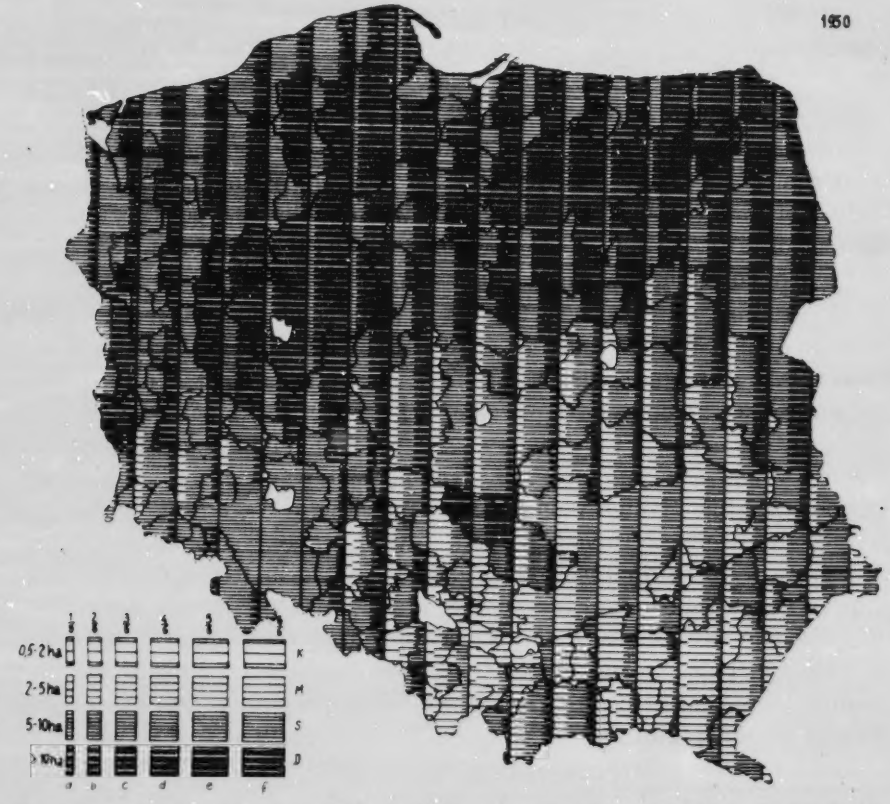


Fig. 3. Leading size structures of individual holdings, 1950. Vertical: size groups in hectares: K — 0,5-to 2, M — 2 to 5, S — 5 to 10, D — over 10.
Horizontal: ratio of the particular size groups in the total acreage of the individual farming:

$$a-\frac{1}{6};\ b-\frac{2}{6};\ c-\frac{3}{6};\ d-\frac{4}{6};\ e-\frac{5}{6};\ f-\frac{6}{6}$$

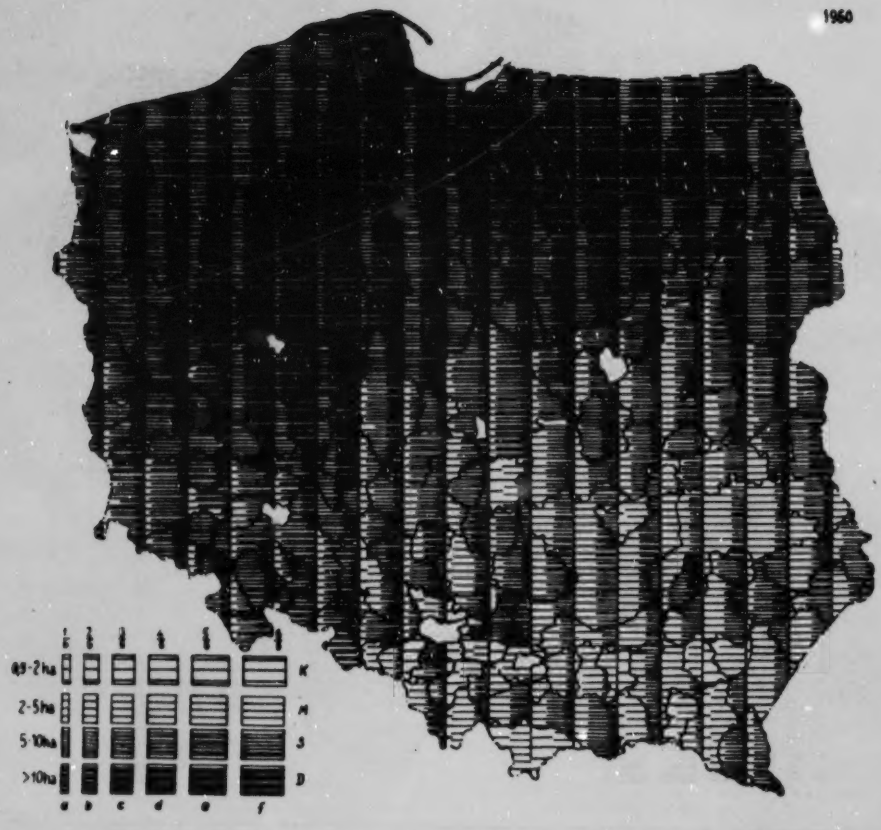


Fig. 4. Leading size structures of individual holdings, 1960. Legend see fig. 3.

The leading categories were worked out by means of the method of successive quotients.[8] From data compiled separately for each powiat during the national agricultural censuses of 1950, 1960 and 1970.

The following six successive quotients were used for the differentiation of the leading categories. The procedure was as follows: proportions between the separate size groups were obtained following the grouping of the holdings into four categories, i.e. *K* (*0.5—2 ha*), *M* (*2—5 ha*), *S* (*5—10 ha*) and *D* (*over 10 ha*). The sizes of each group were successively divided by *1*, *2*, *3*, *4*, *5* and *6*, six highest quotients selected and numbered in the order of the diminishing magnitude. As proved by de-

[8] J. Kostrowicki, *Some methods of determining land and agricultural "orientations" as used in Polish Land Utilizations and Typological Studies*, Geogr. Pol., 13, 1970, pp. 93—120.

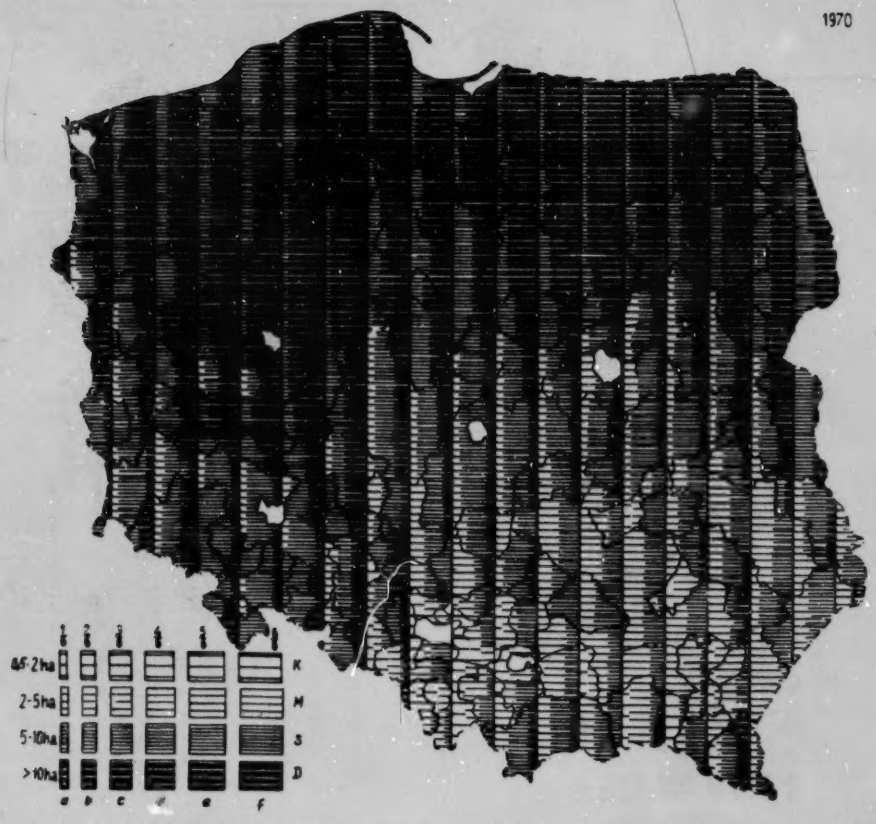


Fig. 5. Leading size structures of individual holdings, 1970. Legend see fig. 3.

tailed tests[4] the number of quotients should not, on the one hand, be too great, while, on the other, it should be big enough (6 were accepted) to make the proportions between the leading size groups easily recognizable and their balance kept.

The described procedure is illustrated by the following table 1. made for the powiat of Cieszyn :

This procedure made it possible to find out that farms from 2 to 5 ha and over 10 ha predominated in the Cieszyn powiat (two quotients each), while farms from 0.5 to 2 ha and from 5 to 10 ha (one quotient each) took the second place. The respective code reads as follows :

$$K_1 + M_1 + S_2 + D_2$$

[4] W. Tyszkiewicz, *Rolnicze użytkowanie ziemi a formy własności i rozmiary gospodarstw rolnych na Kujawach* (Agricultural land use and forms of tenure as well as the sizes of agricultural holdings in the region of Kujawy), 1974, Prace Geogr. IGPAN, 107, p. 100.

Table 1

Divisor	Size groups of private agricultural holdings according to their area			
	0.5—2 ha (K)	2—5 ha (M)	5—10 ha (S)	over 10 ha (D)
1	6596 (4)	12159 (2)	10934 (3)	13167 (1)
2	3298	6079 (5)	5467	6583 (6)
3	2198	3786	3444	4389
4	1649	3039	2733	3291
5	1319	2435	2186	2633
6	1019	2022	1822	2194

The application of the method of successive quotients for the differentiation of leading categories of farms owned by private individuals made it quite easy to distinguish the areas where holdings were of similar size; the procedure facilitated also their synthetical cartographic presentation.

The findings indicate that the number of size structures of agricultural holdings amounted to: 8 in 1950, 7 in 1960 and 6 in 1970 (cf. table 2); while their leading size patterns were 34 (cf. table 3, in which their various forms are shown).

Table 2

no.	Size groups of farms owned by private individuals		
	1950	1960	1970
1	MKSD	MKSD	MKSD
2	MKS	MKS	MKS
3	MK	MK	MK
4	KSD	KSD	KSD
5	KS	KS	—
6	SD	SD	SD
7	S	MSD	—
8	D	—	D

The most common were the following structures:

S_2D_4 and S_1D_5 (all together 70 powiats in 1950, 92 in 1960 and 104 in 1970), with a dominance of larger farms—*D* (over 10 hectares) and a significant share of medium-size farms—*S*. Such structures were the most characteristic for Greater Poland, Gdańsk Pomerania as well as for southern and eastern parts of the Mazurian Lakeland;

S_3D_3 (37 powiats in 1950, 48—in 1960 and 31 in 1970) with equal share of larger and medium size holdings were the most common in North-Eastern Poland and Lower Vistula area;

$K_1S_3D_3$ and $K_1S_4D_1$ (38 powiats in 1950, 57—in 1960 and 75 in 1970)

Table 3. Size structures of private holdings

Lp.	Leading size structures	Number of basic units (powiats)		
		1950	1960	1970
1	2	3	4	5
1	M_4K_2	—	2	1
2	M_3K_3	1	2	—
3	$M_3K_2S_1$	1	4	3
4	M_2K_4	1	2	1
5	$M_2K_3S_1$	1	5	4
6	$M_2K_2S_2$	1	—	1
7	$M_2K_2S_1D_1$	1	—	1
8	$M_2K_1S_2D_1$	—	—	—
9	M_1K_5	1	—	—
10	$M_1K_4S_1$	7	3	5
11	$M_1K_3S_2$	4	7	6
12	$M_1K_2S_2D_1$	3	5	2
13	$M_1K_1S_3D_1$	—	—	1
14	$M_1K_1S_2D_2$	2	—	4
15	$M_1K_2S_1D_2$	1	1	—
16	$M_1S_3D_2$	—	1	—
17	K_3S_2	8	18	11
18	K_3S_3	17	20	22
19	$K_3S_2D_1$	1	—	—
20	K_2S_4	5	3	6
21	$K_2S_3D_1$	11	27	19
22	$K_2S_2D_2$	—	1	—
23	K_1S_5	5	2	—
24	$K_1S_4D_1$	20	30	38
25	$K_1S_3D_2$	18	27	37
26	$K_1S_2D_3$	2	5	5
27	$K_1S_1D_4$	—	—	1
28	S_5D_1	15	6	2
29	S_4D_2	17	16	9
30	S_3D_3	37	48	31
31	S_2D_4	41	45	57
32	S_1D_5	29	37	47
33	S_2	14	—	—
34	D_2	3	—	—

with medium size farms prevailing over smaller (K) and larger (D) were characteristic for most of the central and west-central Poland;

$K_2S_2D_1$ (11 powiats in 1950, 27 in 1960 and 19 in 1970) with prevalence of medium sized farms, considerable share of smaller and secondary role of larger ones, the most common either in the Carpathians or in central Poland;

K_2S_2 and M_1S_2 (25 powiats in 1950, 38—in 1960 and 33 in 1970) with equal share of medium-sized and smaller farms or slight prevalence of

smaller ones. They were the most characteristic for the Polish central uplands;

$M_1K_4S_1$ and $M_1K_3S_2$ (11 powiats in 1950, 10 in 1960 and 11 in 1970) with a dominance of small farms (K) and more or less significant role of medium-sized (S) and very small below 2 hectares (M) holdings. This structure was the most characteristic for the Carpathian foreland.

The structures M_1K_3, M_2K_3 and $M_2K_2S_1$ of most extreme character with the smallest farms prevalent or of balanced role of the smallest and small farms. They were the most common around the Upper Silesian Urban Agglomeration.

From the comparison of the leading size structures of agricultural farms and of their spatial distribution in the period from 1950 to 1970 it appears that the greatest changes in the structure of farms owned by private individuals in the analysed period occurred in the first place in the east-central part of Poland and secondly in south-eastern and north-western Poland. An important factor in the change of the agrarian structure in the past decade was a growing demand for land, which is a proof that farmers became more eager to increase the area of their holdings. This process was particularly well developed in east-central Poland and south-eastern Poland, less well in the remaining parts. Thus, the tendencies to increase the area of the farm occurred predominantly in the areas with the most defective structure, i.e. where the size of farms largely limited agricultural production.

In the period under discussion the land tenancy became to play an important role not only in the organization of holdings but also in the process of shaping the agrarian structure of agriculture as a whole. The outflow of agricultural population to towns and the process of ageing of Poland's inhabitants contributed largely to the increased significance of the lease of land. The total area of land under lease amounted to 1.5 million ha in 1960 (i.e. 8.4 per cent of all agricultural land cultivated by individual farmers) and to 1.9 million ha in 1972[8] (i.e. about 12 per cent of such land). Land tenancy became popular particularly in the western and northern voivodships (19 per cent of the total agricultural land), less—in the central region (11 per cent) and least of all in south-eastern and eastern parts as well as in east-central Poland (9 per cent). Data indicate that the increased significance of land lease involved both transactions with the State Land Fund (PFZ in Polish) and between individual farmers. Studies undertaken by the Institute of Agricultural Economics indicate that land lease is acknowledged by many farmers as a convenient way to increase the area of their farms. The rent is usually a fixed money payment (70—80 per cent

[8] A. Szemberg, *Dzierżawa ziemi w gospodarce indywidualnej w Polsce* (The lease of land in farms owned by private individuals in Poland), Zagad. Ekon. Rolnej, 3, 1973, pp. 57—68.

of cases), but sometimes it can be paid in products or labour, or even in other forms. For example, the lease can be arranged as "*a repayment of debts incurred by the owner and for free lodgings*", "*for the upkeep of a cow*", as payment for "*care taken of the owner and aid in the cultivation of his farm*", "*for board and the use of horse power*", "for money payment and board", etc.[6]

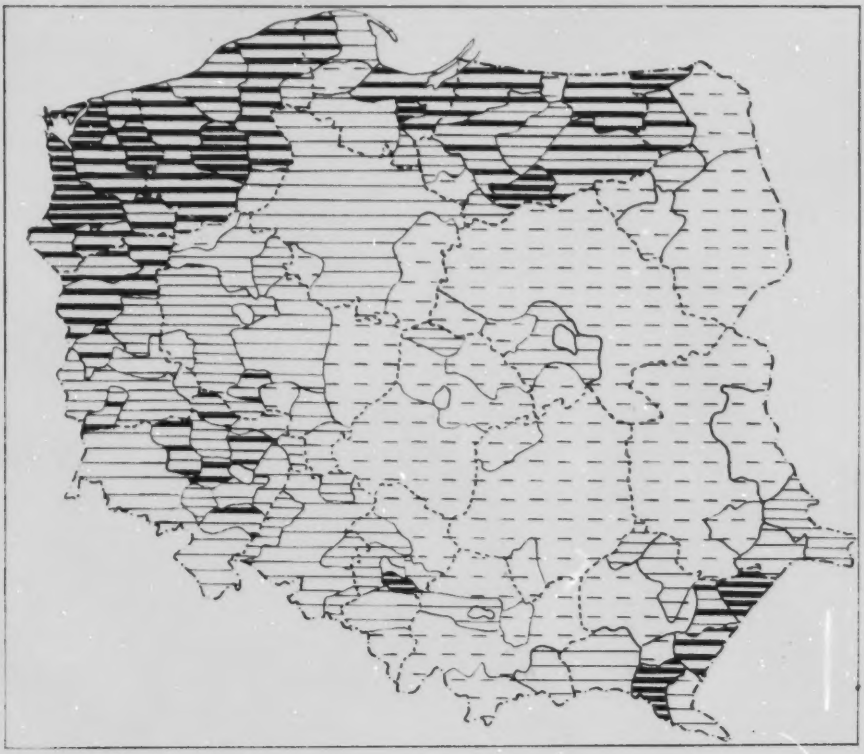
As socialized farming is concerned the share of state farms in the total area of agricultural land in the period 1950—1960—1970 (Figs. 6, 7, 8) increased from 9.6 per cent to 11.9[7] and 14.8.[8] The highest increase occurred in regions where its share was already high, i.e. in the northern part of the country, particularly in Pomerania (by 10 per cent), in Mazuria and Zielona Góra (5—7 per cent), Greater Poland and Lower Vistula valley (3—5 per cent), and Opole and Silesia (1—3 per cent). In 1973, the State sector owned 15,9[9] per cent of agricultural land in Poland. The majority of state farms is now located in the northern and western voivodships (cf. Fig. 6), where their agricultural land exceeds 30 and even 40 per cent of the total. In the remaining parts of central and southern Poland the share of state farms is under 3 or 5 per cent of the total agricultural land.

In size state farms oscillate between 100 and over 1000 hectares. Farms with an area between 400 and 600 ha are quite numerous (25 per cent), the next place is occupied by 1000 ha or over (20 per cent). The prevailing tendency in the last years has been the formation of the so-called "*combines*", i.e. agricultural enterprises, in which several neighbouring farms have been joined together to form a large unit (8—10,000 ha). The "*combines*" help to increase production and build up foundations for a modern agriculture.

These favourable changes in the organization of state farms, initiated in the last years, and the tendency to organize many-unit big enterprises and agricultural "*combines*" make State farms more similar to industrial enterprises. Their high social rank is appreciated by their working staffs and the whole rural community. Changes in the economy and organization of state farms contribute to form a better social pattern of labour relations.

The increased role of the state farming in the cultivation of land is not limited merely to its share in agricultural land. In comparison with farms owned by private individuals state forms developed more rapidly by obtaining a higher level od production, both gross and commercial. Together with collective farms state farms have recently started a direct cooperation with private farmers and Agricultural Circles, rendering them

[6] A. Szemberg, op. cit.,
[7] *Rocznik Statystyczny* (The Statistical Yearbook) GUS, Warszawa, 1974, p. 299.
[8] *Rolniczy Rocznik Statystyczny* 1945—1965 (Agricultural Statistical Yearbook 1945—1965), GUS, Warszawa 1966 p. 185.
[9] *Rocznik Statystyczny* (The Statistical Yearbook) GUS, Warszawa 1971, p. 273.



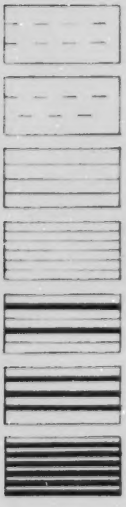


Fig. 6. State farming as a percentage of all agricultural land in 1950.
1 < 5, 2—5—10, 3—10—20, 4—20—30, 5—30—40, 6—40—50, 7>50

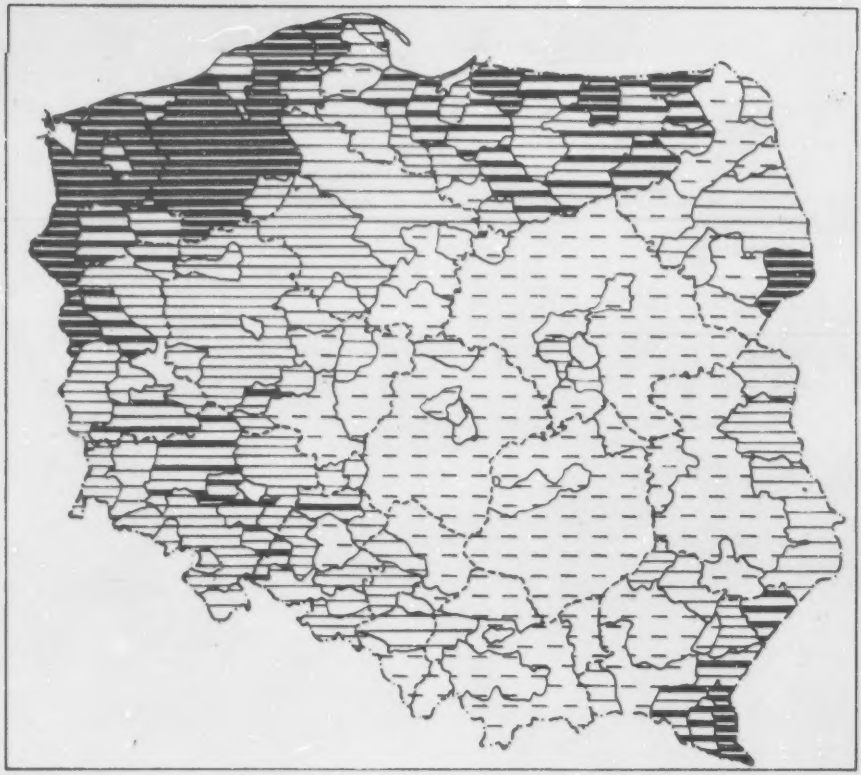
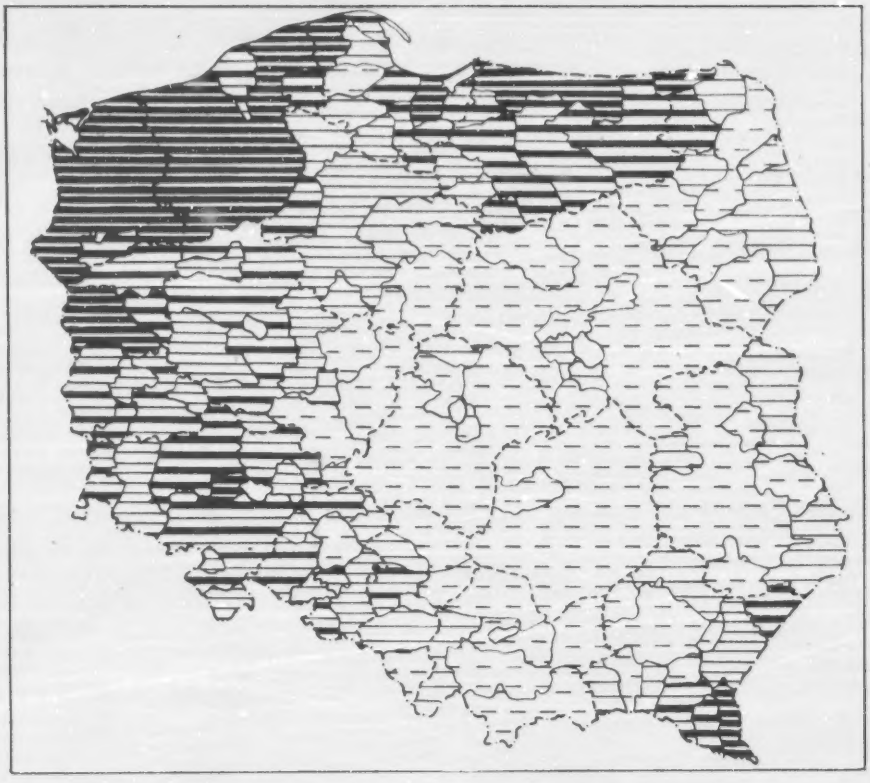


Fig. 7. State farming as a percentage of all agricultural land in 1960.
Legend see fig. 6.



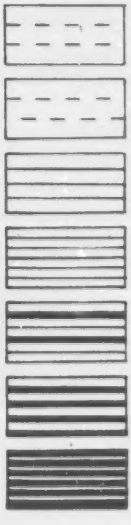


Fig. 8. State farming as a percentage of all agricultural land in 1960.
Legend see fig. 6.

various services, such as selling qualified seeds, lending agricultural machinery, etc.

The role of collective farms is much smaller. In the period under investigation (1950—1960—1970) the area under collective farms increased from 0.8 to 9.6 per cent in 1956 and then with dissolution of most of them after 1956, it dropped to 1.2 per cent in 1960. Since that time it has not changed much and increased up to only 1.3 per cent in 1970. The later period has been also characterized by a decrease in the number of farms (from 1668 in 1960 to 1071 in 1970), as some ineffective ones were dissolved and some prosperous were enlarged. Changes which brought about certain important socio-economic effects have been influenced by the widely recognized principles that every member of the collective farm can easily discontinue his membership and withdraw taking back his own land, and that all important decisions are taken collectively by all members on general meetings. In 1973 there were in Poland 1064 collective farms, which occupied 1.4 per cent of the total agricultural land.[10] Land belonging to collective farms was either supplied by their members or allotted by the State Land Fund.[11] In 1970 ca 70 per cent of the total land belonging to collective farms was allotted by the State Land Fund.

The distribution of collective farms is very unequal in Poland. In Greater Poland, where they are mainly concentrated (Fig. 9), they account for over 5 per cent of agricultural land. In Pomerania and Silesia collective farms cover from 1 to 3 per cent of the area's agricultural land. Elsewhere in Poland this percentage is under 1 per cent or even under 0.5 per cent.

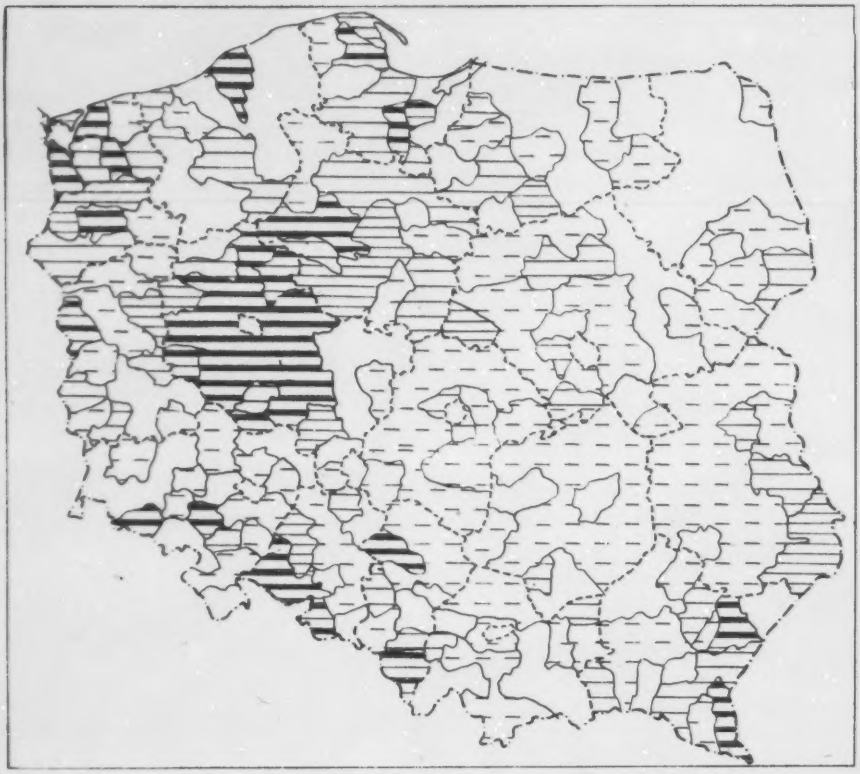
The concentration of collective farms in Greater Poland was caused by the fact that most of the former landed estates were there distributed among their agricultural workers. The new owners, accustomed to working in large scale farming, very soon started to organize collective farms and have continued to work in them.

Collective farms are predominantly small : 30 per cent of them do not exceed 100 ha, the same percentages account for those between 100 and 200 ha and between 200 and 500 ha. Farms over 500 ha are mainly to be found in Greater Poland and in Pomerania. In the southern part of Poland over 70 per cent of collective farms are holdings under 100 ha.

Further changes in agricultural and rural areas as a whole will be connected with the outflow of rural population to non-agricultural jobs,

[10] *Rocznik Statystyczny* (The Statistical Yearbook), GUS, Warszawa 1974, pp. 299 and 324.

[11] The State Land Fund administers land destined for the reconstruction of agrarian structure. This unit, working within local authorities, takes over abandoned farms as well as holdings transferred by their owners for state pensions. Land thus acquired is either sold (or allotted) to state or collective farms, or leased or sold to farmers.



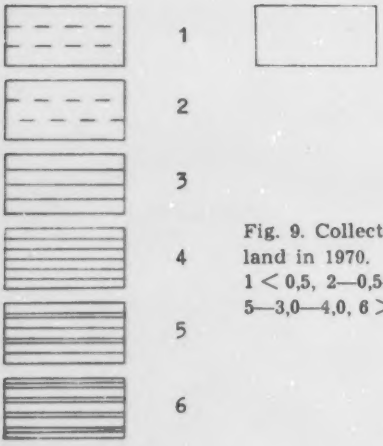


Fig. 9. Collective farming as a percentage of all agricultural land in 1970.
1 < 0,5, 2—0,5—1,0, 3—1,0—2,0, 4—2,0—3,0
5—3,0—4,0, 6 > 4,0, 7 — non existent

the ageing of farmers and the resulting deterioration of the standard of farming.[12] Economically weak farms should therefore be taken over by State Land Fund and rehabilitated by state or collective agriculture or else leased or sold to private farmers thus increasing the size of their holdings. The problem will became still more important in the next decades when an acute labour shortage is anticipated due to the much less numerous groups of age of people born after 1960 that will reach the working age at that time.

[12] W. Tyszkiewicz, *Struktura agrarna Polski 1945—1975, analiza przestrzenno-czasowa* (Changes in the agrarian structure in Poland 1945—1975, A spatio-temporal analysis), Dok. Geogr. 1, 1978.

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CHANGES IN THE PRODUCTION ORIENTATIONS OF THE INDIVIDUAL AGRICULTURE IN POLAND IN THE YEARS 1960, 1965 AND 1970

The word "*orientation*" is conceived by the authors of this paper as the set of leading elements of a given structure ; thus—in the case of agriculture leading forms of land use, leading kinds of animals or leading agricultural products. The production orientation in agriculture, understood in this way, is an economic category that is determined on the basis of productive effects. The production orientation is a synthetic definition of its structure. Thus, it is one of the essential features of agriculture. It makes it possible to draw indirect conclusions concerning the internal links between particular sectors and branches of production, as well as agricultural specialization, and together with the data on natural conditions—the assessment of the correctness of their use.

Many methods to identify agriculture orientations—for which the terms "*combination*", "*association*", "*system*", "*production type*" exist—are known in the literature. These methods have been mostly applied for identification of orientations occurring in the use of land (generally or only as concerns certain categories of land uses) animal breeding and agricultural production.[1]

The simplest way to identify agricultural orientations consists in enumeration of major crops, livestock species, production branches (without giving numerical data or with quoting the absolute size of the land under major crops), number of heads of animal species, value or volume of production by branches or products or, eventually, the share of dominant crop in the total land, given species in the whole livestock as well

[1] On methods of orientations identifications see : K. Bielecka, *Krytyczna analiza i ocena metod określania kierunków rolnictwa* (Critical analysis and assessment of the methods used to identify agricultural orientations), Warsaw 1973, p. 43; (manuscript). R. Kulikowski, J. Szyrmer, *Changements recents de l'utilisation du sol en Pologne*, Geogr. Pol. 29, 1974, p. 205—217; Z. Wojtaszek, *Przegląd metod określania kierunków produkcji rolniczej w literaturze ekonomiczno-rolniczej polskiej i zagranicznej* (A review of the methods used to identify the orientations of agricultural production as applied in the Polish and foreign literature in agricultural economy), Biuletyn KPZK PAN, 42, 1966, p. 99—158.

as branch or product in total production. The far-reaching subjectivism as well as the great difficulty as concerns the comparability of effects is a disadvantage of this method. Thus, some authors[2] assume *ex ante* certain criteria—generally the level of the percentage share—to which a given element should correspond in order to be considered as either dominant or essential. It happens that, depending on the rate of this share, different degrees of domination are distinguished. The subjectivism of the first-mentioned methods is here decreased though only to a certain degree. Moreover the comparability of results could be achieved only by application of uniform criteria qualifying the elements as dominant or leading ones, which is by no means easy. The present authors have come across some scores of various criteria.

The more objective method for determination of orientations has been elaborated by J. C. Weaver.[3] Several researchers, accepting its attractivity proposed various modifications aiming at elimination of its certain disadvantages. Especially known are the modifications that had been proposed by D. Thomas[4], S. M. Rafiullah[5] and Kikukazu Doi[6]. Generally speaking, these methods are based on the determination of the number of the most important elements which can be recognised as dominant. This can be achieved by calculating the deviations between the empirical data and the theoretical models (every such a model corresponds to a certain number of the most important elements) by means of various mathematical formulae. The theoretical model which corresponds best to the virtual structure is adopted for it. The orientation consists of the number of the most important elements suiting best a given model. All the dominant elements are, in substance, equiponderant.

Without entering into a detailed analysis and comparisons between particular variants[7], it seems that the principal disadvantages of that met-

[2] For instance: B. Andreae, *Betriebsvereinfachung in der Landwirtschaft*. Berichte über Landwirtschaft, Sonderheft 169, 1958; J. Okuniewski, *Próba metody oznaczania kierunków produkcji* (Sum: An attempt to determine production orientations), Zag. Ekon. Rol. 1 1959, p. 62—80.

[3] I. C. Weaver, *Livestock units and combination regions in the Middle West*, Ecomic Geogr., 32, 3, 1956, p. 237—259 also K. Nawłoka-Bielecka, *Badania Johna C. Weavera nad strukturą przestrzenną rolnictwa* (Sum: Investigations of John C. Weaver on the spatial structure of agriculture), Przegl. Geogr., 34, 4, 1962, p. 773—779.

[4] D. Thomas, *Agriculture in Wales during the Napoleonic Wars*, Cardiff. 1963.

[5] S. M. Rafiullah, *A new approach to functional classification of towns*, The Geographer, 12, 1965.

[6] Kikukazu Doi, *The industrial structure of Japanese prefectures* (in:) Proceedings of the IGU Regional Conference in Japan, 1957, p. 310—316.

[7] A detailed comparison of variants has been made by M. F. Siddiqi, *Combinational analysis, a review of methodology*, The Geographer, 14, 1967 and K. Bielecka, *Metody określania elementów wiodących w strukturze. Modyfikacje metody J. C. We-*

hod are that merely ranking of individual leading elements gives no sufficient information on the structure under investigation, and that the significance of individual leading elements is always considered the same. The method of successive quotients seems to solve more efficiently these problems. It was applied, for the first time, at the Department of Agricultural Geography of the Institute of Geography, Polish Academy of Sciences for identification of orientations in land utilization and then extended to cover animal breeding and agricultural production orientations[8], and it appeared to be also effective not only under the Polish conditions.[9] This method has been also applied in this paper.

The method of successive quotients is based on the division of values (or percentage shares) of particular elements which enter into the composition of the given set through the successive natural numbers from 1 to "n". Disposing of k elements we obtain a collection of numbers "$k \times n$". From among these numbers we select "n" of the greatest ones (the so-called successive greatest quotients). Every element is given its weight in the structure corresponding to the quantity of numbers out of the sequence created by the division of its values by successive natural numbers have been included into the subset n of greatest numbers.

This method can be, moreover, applied in a multi-stage way. We single out the basic groups of elements out of the structure, carrying out the whole procedure in relation to them and ascribing an appropriate weight to each of them. Then, within the framework of each group, we repeat the identical procedure, distributing the weights acquired by these groups among the elements that enter into their respective composition. In this way, after determining the weigth of the separate sectors of agri-

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avera (Sum : Methods applied for the definition of the structures leading elements. Further modifications of J. C. Weaver's method), Przeg. Geogr., 43, 1—2, 1971, p. 19—36.

[8] For instance : W. Biegajło, R. Kulikowski, *Kierunki użytkowania gruntów ornych. Studium porównawcze na przykładzie Polski, Czechosłowacji i Węgier.* (Sum : Crop combinations. A comparative case study of Poland, Czechoslovakia and Hungary), Przegl. Geogr., 44, 3, 1972, p. 539—547; R. Szczęsny, *Umfang und Richtungen der Viehhaltung in der U. R. Polen* 1965, Mitteilungen für Agrargeographie, Landwirtschaftliche Regionalplannung und ausländische Landwirtschaft, 39, 1969, p. 741—747; R. Kulikowski, *Zmiany w kierunkach użytkowania gruntów ornych w Polsce w latach 1958—1965* (Sum : Changes in crop combinations pattern in Poland between 1958—1965), Przeg. Geogr., 41, 2, 1969, p. 281—286; J. Kostrowicki, *On the methods of determining land use, crop and livestock combinations as used in the Polish studies* (in :) Essays in Applied Geography in memory of the Late Professor Syed Muzafer Ali, University of Sagar, Sagar 1976, p. 111—120.

[9] For instance : J. P. Saxena, B. P. Panda, Who have applied both Weaver and Kikukazu Doi and of successive quotients techniques for indentification of land use orientations in India, have confirmed the superiority of the last one. Cf. J. P. Saxena, B. P. Panda, *Crop combination regions in the Chhatisgarh Basin, India* (in : Agricultural typology and land use, Hamilton 1973, p. 231—243.

cultural production in a given orientation, it is possible to determine the proportions between the separate branches of a given sector and, in the third degree, among individual products of a given branch.

A two-stage procedure has been applied in this paper. Insofar as the first stage is concerned, the definite weights were given to each of two principal sectors : crop production and animal production, obtaining in this way, the division of orientations on the basis of a sectorial structure of production, according to the pattern which is as follows :

R_6 exclusively crop orientations
R_5+Z_1 predominantly crop orientations with animal production
R_4+Z_2 crop orientations with a share of animal production
R_3+Z_3 crop-animal orientations
R_2+Z_4 animal orientations with a share of crop production
R_1+Z_5 predominantly animal orientations with crop production
Z_6 exclusively animal orientations

As concerns the second stage, with a consequent application of the method of successive quotients, the determination was made of the role of particular products in both crop and animal production. The weights of products have been determined, within the framework of every sector, by the number of quotients which resulted in the first phase from determination of product weights in the gross agricultural production. The above mentioned number "n" has been limited (after many tests) to 6 successive greatest quotients. Thus, no more than 6 elements (products) could be covered by a given orientation.

The name of a given orientation was made on the basis of crop or animal products entering into this orientation or prepondering in, the following symbols being adopted for them :

crop products :

p — wheat
z — rye
j — barley
f — beans
s — potatoes
o — fruits
w — vegetables
l — flax
k — clover
r — rapeseed
t — tobacco
b — sugar beet
h — hay

animal products :

b — beef (live weight)
t — pork (live weight)
d — poultry (live weight)
m — milk
j — eggs

Then the orientation has been registered by means of the symbol, the record of crop production being put before sign "+" and that concerning animal production—after the sign "+". By way of example : $R_4s_2z_1+Z_2m_1t_1$, which can be read as the crop orientation with a share of animal production—potatoes with rye with a share of milk and pork.

The analyses of the changes of production orientations was made for Polish individual farming in 1960, 1965 and 1970. The whole Polish territory was covered by investigation. The district (powiat) was the territorial unit of the analysis. Thus the orientations were determined for 317

powiats in three time sections and in relation to two production measures (gross and commercial). The statistical data gathered by GUS (Main Statistical Board) served as basis of the analysis, being only partially covered by use of complementary data gathered by institutions engaged in the purchase of agricultural products from farmers.

Individual farming is the dominant sector in Poland. In the period under consideration it exploited some 85% of the surface of agricultural land, its share in the Polish total agriculture being: some 87—89% and 77—81% of gross and commercial production respectively.

ORIENTATIONS IN GROSS PRODUCTION [18]

As concerns the three analysed time sections the orientations of the gross agricultural production were characterized by an extremely high degree of variety and a considerable spatial differentiation. The total of orientations, that were singled out in Poland in that period, amounted to 52 : 38—in 1960, 40—in 1965 and 45 in 1970. No orientations exclusively animal (Z_6) or predominantly animal (Z_5+R_1) were noted in the gross agricultural production. The group of animal orientations with a share of crop production (Z_4+R_2) disappeared, as well, practically owing to the much higher pace of growth of crop production (increased outlays—especially for mineral fertilization) than that of animal production (unattractive meat prices—especially those of pork) being represented in 1970 only by the powiat of Ostrzeszów (11 powiats in 1960 and 4 in 1965).

In all the time sections the crop-animal orientations (R_3+Z_3) were the most widespread group. In 1960, they were observed in 218 powiats, being the group definitely dominant in the central and southern Poland (with the exception of the Wrocław voivodship) as well as on the north in both the Gdańsk and the Olsztyn voivodship) and in the eastern part of the Warsaw voivodship, as well.

In 1965, this group of orientations was observed in the similar number of powiats (220). As compared with 1960, negligible changes took place in their spatial distribution, being connected with their more pronounced domination in the Olsztyn, Wrocław and Koszalin voivodships (drop in the value of crop production resulting from the decrease in yields caused by unfavourable weather conditions in Wrocław region) their limited occurrence being, however, observed in the Lublin and Kielce voivodships. In 1970, orientations belonging to this group were observed in 210 powiats resembling, from the point of view of distribution, the picture of 1960.

[18] Maps of gross production orientations of individual farming in 1960, 1965, 1970 see: *Przemiany kierunków produkcji globalnej w rolnictwie indywidualnym*, (Changes in the orientations of gross production of individual farming), Przegląd Geograficzny, 4, 1977, p. 689—702.

23 orientations have been singled out within the framework of this group (the year of 1970 being also characterized in this respect by the highest rate of variety). The potato-pork orientation with rye (or hay) and milk ($R_3s_2z_1+Z_3t_2m_1$) being the most strongly represented. Its greatest territorial spread took place in 1965—namely amounting to 70 powiats (59 in 1960 and 54 in 1970). It occurred in many powiats of both central and northern Poland, especially in the areas eastwards of Warsaw, along the boundary line of Łódź and Poznań voivodships. Moreover, in 1965, this orientation was characteristic for many powiats of the Koszalin voivodship as well as of the southern part of the Olsztyn voivodship, central part of the Poznań voivodship and north-eastern part of the Bydgoszcz voivodship. The initial quantitative growth of this orientation (period of 1960—1965) was connected with the increase of the surface under intensifying crops, mainly of potatoes and industrial crops. One should connect the limited occurrence of this orientation in the period 1965—1970 with the further specialisation in potatoes growing of the eastern districts of the Warsaw voivodship and of smaller regions where it was replaced by the newly-emerged and developing potato-pork orientation with milk ($R_3s_2+Z_2t_2m_1$) (In 1965—1 and in 1970—9 powiats). The quantitative decrease of the number of powiats with the potato-pork orientation with rye and milk was also caused by a significant increase of the area under wheat and, on the other hand, with the drop in the number of pigs. Thus, within this orientation, potato and rye were being replaced by wheat, and pork by milk. The potato-milk orientation with rye (or hay) and pork ($R_3s_2z_1+Z_3m_2t_1$) was, then, considerably expanded, occurring, in 1965, in 16 districts while in 1970—in 33 powiats, mainly in the south-eastern and central parts of the Łódź voivodship, which, together with the northern districts of the Upper Silesia compose a broad region producing milk and potatoes for consumption in big urban agglomerations of Upper Silesia and Łódź. A similar region supplying the Tri-town (Gdańsk, Gdynia, Sopot) with the above-mentioned products has developed in the Kaszuby region. By 1970, this orientation emerged, as well, in the vicinity of Warsaw, embracing the districts marked with less advantageous natural conditions.

A slowly-going disappearance trend (21 districts in 1960; 13—in 1970) marked the rye-potato-hay-milk orientation with pork ($R_3z_1s_1h_1+$ $+Z_3m_2t_1$) occurring mainly in the central and northern part of the Mazurian Lakeland, as well as in some powiats situated along the Noteć river. By 1970, the extent of this orientation shrank in the southern part of the voivodship of Zielona Góra, being connected with the increasing role of wheat and multi-year leguminous crops which, replacing rye and hay, resulted in the spreading of the wheat-clover-potato-milk orientation

with pork ($R_3p_1k_1s_1+Z_3m_2t_1$)—12 powiats in 1960, 18 in 1965 and 25—in 1970.

The following orientations belong to those which occurred relatively often in the earlier period declining completely in 1970 : those consisting of rye-park with potatoes and milk ($R_3z_2s_1+Z_3t_2m_1$)—21 powiats in 1960 and 0—in 1970 ; and the rye-milk ones with pork and potatoes ($R_3z_2s_1+$ $+Z_3m_2t_1$)—12 powiats in 1960, 3—in 1965 and 0—in 1970. The disappearance of these orientations was connected with the intensification of agricultural production in Poland, consisting, among the others, in the extension of the surface under cereal crops giving higher yields than rye (mainly wheat and barley), as well as of increasing production of industrial crops and vegetables.

Of interest is the orientation the appearance of which (2 powiats in 1965) and its spreading by 1970 over the area of the Sudety mountains is the consequence of adaptation of agricultural production to the definite both natural and economic conditions ; namely it is the wheat-hay-potatoes-milk with beef ($R_3p_1h_1s_1+Z_3m_2b_1$). Connected with the natural conditions which are favourable for grasses (high rainfall) and unfavourable for cereals and root crops (shallow soils, extreme variations of landform) and also with decreasing manpower potential.

The second group of orientations that was generally represented in all three periods of time was that composed of cop orientations with a share of animal production (R_4+Z_2). This group was revealing a expanding tendency (84 districts in 1960, 90--in 1965 and 105—in 1970). The reasons for which orientations of this group were spreading over the new areas have already been mentioned when speaking about the decrease in the range of crop-animal orientations. The orientations potatoes with rye and hay and with a share of pork and milk ($R_4s_2z_1h_1+Z_2t_1m_1$) occurring, in 1960 only in 5 powiats (1965—10 powiats), in 1970, in as much as 16 powiats, taking the form of more compact regions in the Kielce voivodship, the northern part of the Warsaw voivodship and along the boundary line of the Bydgoszcz and Koszalin voivodships. The orientations : potatoes with wheat and rye and with a share of pork and milk ($R_4z_2p_1z_1+$ $+Z_2t_1m_1$) as well as wheat with potatoes and clover and with the share of milk or of milk and pork ($R_4p_2s_1k_1+Z_2m_2$ or m_1t_1) have also been considerably expanded. The first one occurred, in 1965, only in 2 powiats, becoming spread over 13 powiats in 1970, with its concentration in the western part of the Bdygoszcz voivodship as well as in the Wrocław, Cracow and Lublin voivodships.

In the period, covering the years 1960—1970 the orientations with the share of industrial crops were considerably expanded. This goes especially for the wheat orientation with sugar beets and potatoes and with a share of milk and pork ($R_4p_2b_1s_1+Z_2m_1t_1$) which, in 1970, was represen-

ted in 11 powiats situated mainly in the Silesian Lowland and in the south-eastern powiats of the Lublin Upland. The occurrence of this orientation was limited to the areas with best soils. As concerns still good, but poorer soils, there took place a development of potatoes orientations with sugar beet and rye and with the share of pork and milk ($R_4s_2b_1z_1+Z_2t_1m_1$) as well as of those with sugar beet and wheat and with the share of pork and milk ($R_4s_2b_1p_1+Z_2t_1m_1$). The development of orientations with the share of sugar beet, should be considered—because of high yields of this plant—as fairly advantageous not only from the point of view of the increased supply of raw-material for sugar production but also from that of the possibilities of a partial covering of fodder shortage (in some western countries with a high level of agricultural production, some 1/4 of the production of sugar beets goes for animal fodder).

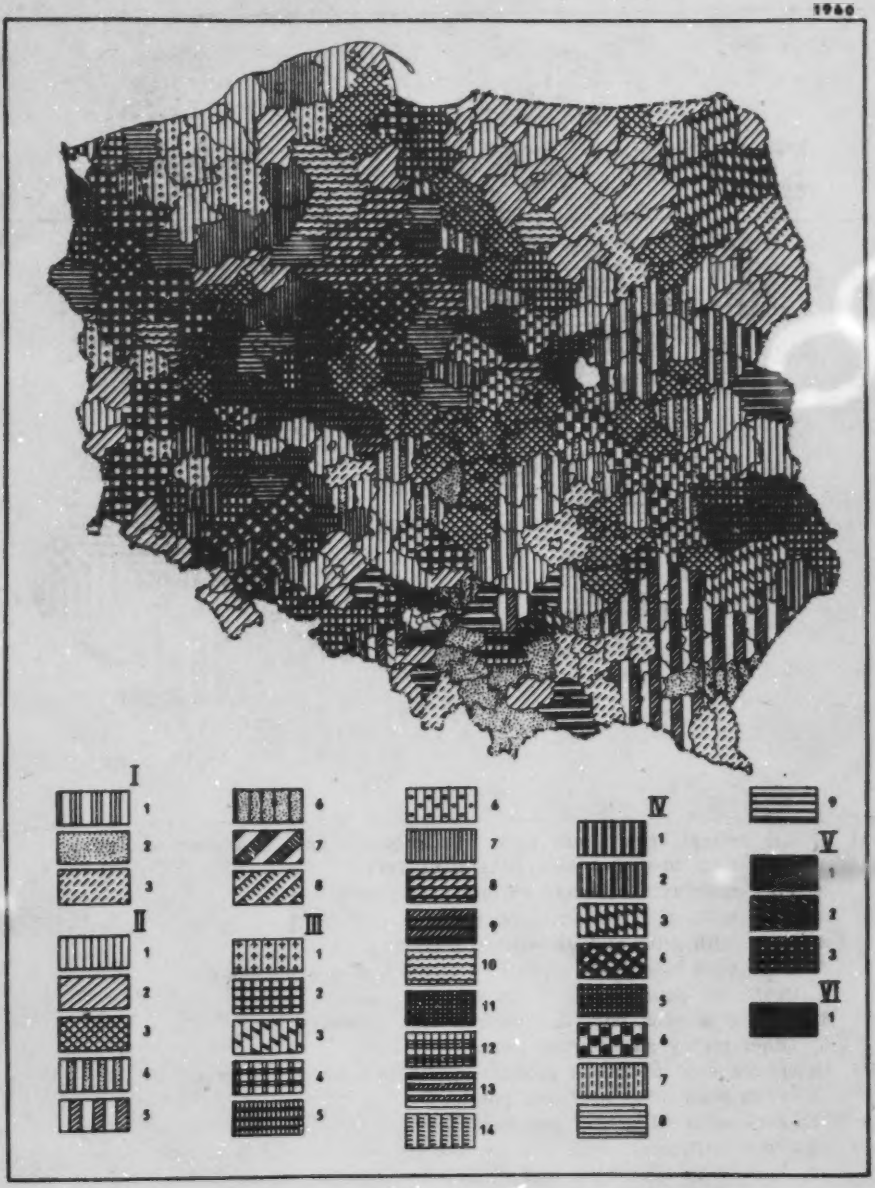
The following orientations have moderately extended their occurrence : a) potato with wheat and vegetables and with a share of milk ($R_4s_2p_1w_1+Z_2m_2$)—1 powiat in 1960, 2—in 1965 and 4 in 1970 ; b) potato with vegetables and fruits and with a share of milk ($R_4s_2w_1o_1+Z_2m_2$)—3 powiats in 1970, 0—in both 1960 and 1965 ; potato—vegatable with a share of milk and pork ($R_4s_2w_2+Z_2m_1t_1$) which emerged in 1970 in 2 districts of the Warsaw suburban zone. The development of these orientations has been always connected with the neighbourhood of urban centres, assuring them the supply of vegetables. The potatoes orientations with wheat and tobacco and with a share of milk ($R_4s_2p_1t_1+Z_2m_2$) that occurred in 1960 in 2 powiats on the north-east of Cracow, were replaced by tobacco orientations with wheat and milk ($R_4t_2p_1+Z_2m_2$), covering two additonal powiats in 1970.

The potato orientation with rye and hay and with a share of pork and milk ($R_4s_2z_1h_1+Z_2t_1m_1$), occurring in all the periods, mainly in the voivodship of Białystok, have gradually disappeared. The complete disappearance has been noted as concerns the rye-potato orientation with a share of pork and milk ($R_4z_2s_2+Z_2t_1m_1$) occurring in 1960 in 20 powiats.

ORIENTATIONS IN COMMERCIAL PRODUCTION

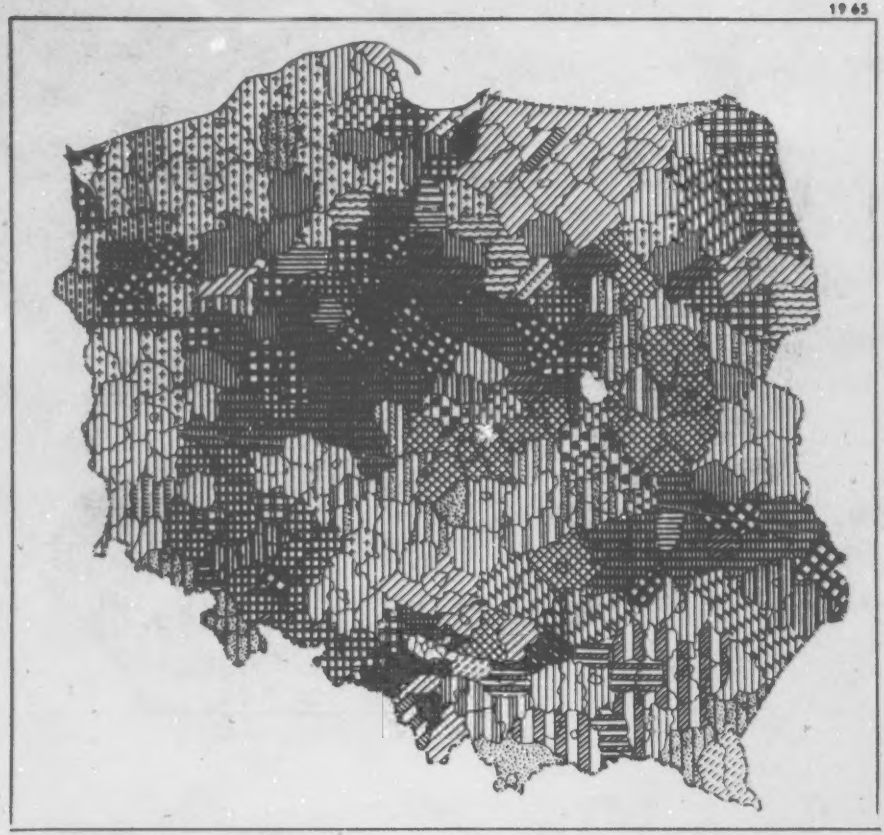
248 orientations have been generally singled out : 119 orientations in 1960, 125—in 1965 and 144 in 1970. Thus much more orientations were singled out in commercial production than in the case of gross production which may be an indication that commercial production was much more differentiated. The continuous quantitative growth of a number of orientations points out that there has been a tendency to an even greater spatial differentiation in commercial production (fig. 1, 2, 3).

The group of the exclusively animal orientations (Z_6) embraced, in 1960, 31 powiats, in 1965—13, and in 1970—12 powiats. These orientations occurred mainly in the Carpathians, in the northern and western part of



Orientations in commercial agricultural production in Poland 1960, 1965, 1970

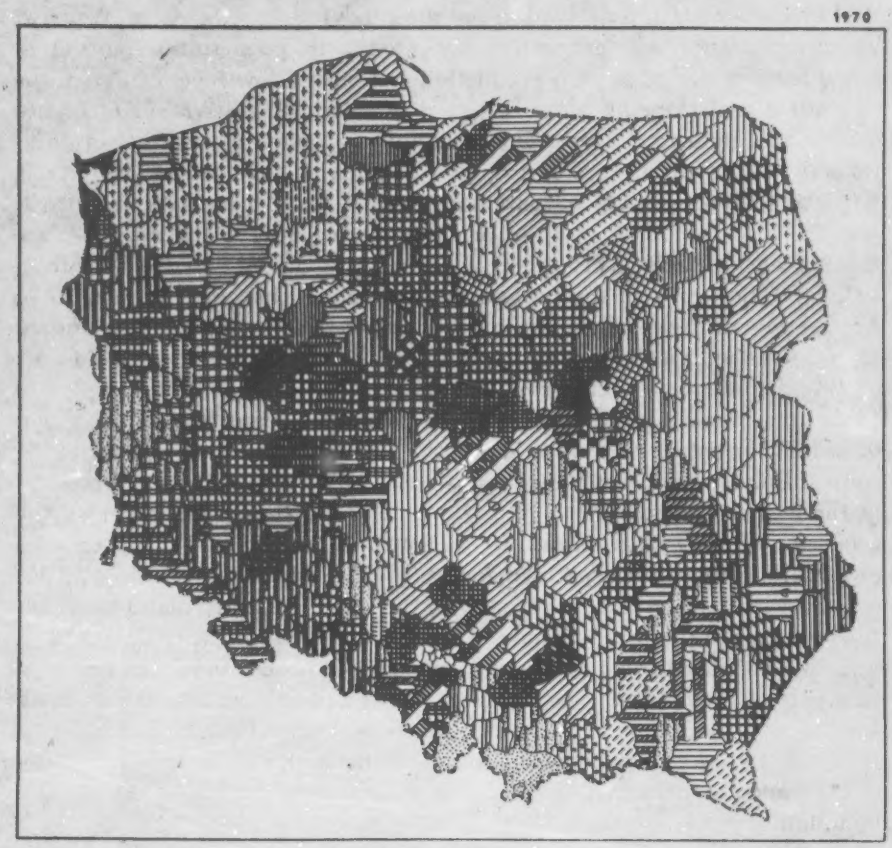
I. Exclusively animal orientations.
   1. Pork with milk and pork-milk.
   2. Pork-milk with beef.
   3. Other exclusively animal orientations.



II. Highly animal orientations with crop products as a secondary elements.
1. Pork with beef and various crop products.
2. Pork-milk with beef and various crop products.
3. Pork-milk with various crop products.
4. Pork with milk and various crop products.
5. Pork with beef, milk, eggs and various crop products.
6. Beef-pork with milk and various crop products.
7. Milk with beef, pork and various crop products.
8. Other highly animal orientations.

III. Orientations with animal products prevailing over crop products.
1. Pork with milk, beef and potatoes.
2. Pork with milk, beef and sugar beets.
3. Pork with beef, milk and tobacco (or tobacco and potatoes).
4. Pork with beef, milk and vegetables.
5. Pork with milk and sugar beets or sugar beets and other crop products.
6. Pork with milk and fruits (or fruits and other crop products).
7. Pork with milk and potatoes.
8. Pork-milk with sugar beets.
9. Milk with pork and sugar beets.
10. Pork-milk with potatoes (or potatoes and other crop products).

1970



11. Milk with pork, beef and vegetables.
12. Other animal orientations with crop products.
13. Other pork-milk orientations with crop products.
14. Other pork orientations with beef, milk and crop products.

IV. Mixed crop-animal orientations.
1. Wheat-pork-beef with milk and sugar beets.
2. Sugar beets-pork-beef with wheat and milk.
3. Tobacco-pork-beef with wheat and milk.
4. Sugar beets-pork with wheat (or barley) and milk.
5. Vegetables-pork-beef or vegetables-milk with pork.
6. Fruits-pork with milk.
7. Potatoes-pork with milk.
8. Other mixed crop animal orientations with high proportion of pork.
9. Other mixed crop animal orientations.

V. Orientations with crop products prevailing over other animal products.
1. Vegetables with pork and milk.
2. Tobacco with pork and milk.
3. Sugar beets with pork and milk.

VI. Highly crop orientations with animal products as secondary elements.
1. Vegetables with milk.

the Kielce voivodship as well as in some poviats eastwards of Warsaw. Their occurrence was generally connected with poor soils resulting in a low level of the gross crop production and with a low level of agriculture itself, this fact being often reflected in a lack of cultivation of highly commercial industrial crops. The group of predominantly animal orientations (R_1+Z_3) with a share of crop production was observed in 1960 in 134 powiats, in 1965—in 124 powiats and in 1970—in 116 powiats. In 1960 it was the most common group of orientations, occupying the second place in 1965 and in 1970. This group was occurring mainly in the Mazurian Lakeland, however, in the period under consideration, giving place in so far as the south-western part of this region was concerned, to animal orientations with a share of crop production. Podlasie was the second area of the occurrence of this group of orientations, though temporarily, in 1965, some powiats in its north-eastern part were comprised in the group of animal orientations with a share of crop production. As concerns the central Poland, almost whole voivodship of Łódź, as well as some powiats in the western and southern parts of the Poznań voivodship revealed the occurring of these orientations. In the south-eastern Poland they occurred especially in the sub-Carpathian zone as well as in the voivodship of Kielce, in its southern and western part. In the south-eastern Poland they were spreading to the disadvantage of the exclusively animal orientations.

In 1965, that group of orientations extended considerably in the western part of Lower Silesia to the disadvantage of animal orientations with a share of crop production. It was a temporary phenomenon, provoked in that year by unconvenient weather conditions in this area, thus by a low-level yields of principal crops. These orientations embraced the Sudety mountains, as well.

The animal orientations with a share of crop production (R_2+Z_4) occurred in 1960 in 111 powiats, in 1965—in 141 and in 1970—in 131 powiats. In 1960 and 1965 they were the most common group.

These orientations were occurring mainly in Pomerania, where they revealed a spreading tendency, in the Greater Poland, in the western part of Lower Silesia, as well as in many districts of both the Opole and Upper Silesia. In Lower Silesia, in its western part, they gave temporarily place to the predominantly animal orientations with a share of crop production, however, because of the same reason, that is of low yields as concerns the main crops, they expanded in its eastern part to the disadvantage of crop-animal orientations.

In the above-mentioned area, these orientations were especially connected with larger farms and smaller density of agricultural population. Because of the higher rate of mechanisation in Poland of the crop production than of the animal one, larger farms, in the face of lack of manpower, focused a greater attention on crop production. In the Mazurian Lakeland

this phenomenon was not observed due to greater amount of grasslands. In the eastern part of the country, these orientations were popular in the northern part of the Białystok voivodship, as well as in both central and southern parts of the Lublin voivodship, the fairly popular cultivation of the highly commercial, industrial crops, especially of tobacco, being the cause of it. In the Lublin voivodship, the orientations under consideration were giving place to the crop-animal ones.

The crop-animal orientations (R_3+Z_3) occurred in 1960 in 30 powiats, in 1965—in 34, and in1970—in 54 powiats. They occurred especially in the Silesian Lowland and Sudety foreland. In 1965 they occurred on a much smaller area, however, in 1965—1970, the area covered by them extended considerably, embracing the western and southern parts of the Opole voivodship.

The crop-animal orientations occurred also in Kujawy, and as far as the period under consideration is concerned, in addition a new region where they became preponderant began to be formed on the lower Vistula course. In the north-west of the country the crop-animal orientations occurred also in the Szczecin Pomerania. In the analysed period, a large area comprised by these orientations was set up in the Lublin Upland. Moreover, they occurred in some districts specialized in horticulture, generally situated in a vicinity more or less close to Warsaw, as well as in some districts specialized in tobacco production. Generally speaking it was a group of orientations connected mainly with good soils and a great popularity of highly commercial industrial crops.

The crop orientations with a share of animal production (R_4+Z_2) were only incidental (in 1960 in 2 powiats, in 1965—in 5 and in 1970—in 3 powiats). They were connected with a specific specialization in tobacco production (powiats of Proszowice and Kazimierza Wielka), sugar beet production (powiats of Inowrocław, Wrocław and Pyrzyce) or that of vegetables (powiat of Pruszków).

The predominantly crop orientation with animal production (R_5+Z_1) occurred only once, in 1970, in the powiat of Pruszków.

Thus the animal production was dominant in commercial production—its preponderance being noted in 813 cases while the balance between the sectors was noted in 138 cases, and the preponderance of crop production—in 11 cases only. However, the tendency for the increased share of crop production emerged in the analysed period, being caused, on the one hand, by its more speedy mechanisation and, on the other hand, by a more rapid increase of the purchase prices of crop products.

Within the framework of commercial products pork occupied a special position. For the total of 951 cases the predominantly pork and pork orientations occurred in 802 cases (60 predominatly pork cases, inclusive). As concerns the remaining ones, only in 5 cases the pork livestock was not

comprised in the orientation (in 1970—they occurred in all). However, the importance of this most essential commercial product dropped in the period under consideration because of an unfavourable tendency as concerns the relation between the purchase price and the fodder price.

From among the remaining products, weights 4 and 5 were achieved only by vegetables in the district of Pruszków, where during the whole period under consideration the predominantly vegetable orientation was maintained as well as tobacco in 1965 in the poviat of Proszowice. The number of powiats, where orientations with one product were extremely dominant, decreased in the analysed period. Instead the mixed orientations—determined by 6 various products, thus revealing a significant lack of concentration—occurred in as many as 15 powiats in 1970, while only in one powiat in 1960 and 1965. These phenomena can reveal the decreasing degree of specialization in the Polish individual farming.

The pork orientation with potatoes, beef and milk ($R_1s_1+Z_3b_1t_3m_1$ in 45 cases), the pork-milk orientation with potatoes and beet ($R_1s_1+Z_3b_1t_2m_2$—in 33 cases), as well as the potato-pork orientation with a share of beef and milk ($R_2s_2+Z_2b_1t_2m_1$—in 31 cases) fairly similar to each other were the most popular orientations. They occurred especially in the Pomerian and Mazurian Lakelands, expanding also, in the period under consideration, in central Poland. The pork orientation with milk and potatoes ($R_1s_1+Z_2t_3m_1$) was quite popular in the same areas, but it almost disappeared before 1970. The following orientations : pork-sugar beet with beef and milk ($R_2b_2+Z_4b_1t_2m_1$—in 23 cases), pork with beef, milk and sugar beet ($R_1b_1+Z_3b_1t_3m_1$—in 20 cases), pork with milk, wheat and sugar beet ($R_2p_1b_1+Z_4b_1t_2m_1$—in 22 cases), pork with milk, sugar beet and potatoes ($R_2s_1b_1+Z_4t_3m_1$—in 20 cases) were also among the most popular. All of them were similar pork-sugar beet or pork with sugar beet and other products.

These orientations occurred especially in central Poland, as well as in Lower Silesia. By 1970 they have been disappearing and the orientation pork with milk, potatoes and sugar beet ($R_2s_1b_1+Z_4t_3m_1$)—has completely vanished.

Among the specific orientations were the vegetable ones occurring especially in Upper Silesia, in the vicinity of Warsaw (because of a large selling market) and in the Szczecin powiat, as well as tobacco orientations occurring in the zones of tobacco cultivating—in the southern part of the Lublin Upland, in the north-eastern part of Poland, north-eastwards of Cracow, and on the lower Vistula. Fruit orientations occurred mostly in the vicinity of big cities.

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CHANGES AND TRENDS IN THE SPATIAL PATTERN OF TYPES OF INDIVIDUAL AGRICULTURE IN POLAND 1960—1970

INTRODUCTION

Attempts to give a full synthetic account of the spatial problems of agriculture have been made for a long time. Many studies and publications containing tentative syntheses of agriculture on regional, national, and even world scale exist in both Polish and foreign languages. But on the whole the results obtained are not comparable. The principles and methods of synthesizing approaches applied differ from case to case, both because the researches are founded on various criteria or diagnostic features (often including nonagricultural characteristics, such as natural or other external conditions) and because outhors tend to group multifeature units by means of different methods. Consequently, attempts to make any broader generalizations of the available studies are often bound to fail as their results are hardly comparable.

Studies in agricultural typology have also been carried out for several years now in the Department of Agricultural Geography of the Institute of Geography and Spatial Organization under the supervision of Professor J. Kostrowicki. Those investigations which were connected with the activities of the Commission on Agricultural Typology of the International Geographical Union, were intended to serve two purposes:

— to identify principles and criteria and to develop methods and techniques of identifying types of agriculture to be used in grouping various units characterized by sets of diagnostic features according to their similarity,

— to identify the types of agriculture in Poland and their transformations to conclude as to the changes taking place in the spatial organization of Polish agriculture with a view to apply the methods and the results obtained in planning and/or forecasting further agricultural development in Poland.

So far, the following research projects have been completed:

— the concept of the type of agriculture has been precisely defined and the scope of typological research delimited,

— diagnostic features representing the essential characteristics of agriculture have been selected to form a consistent set of variables,

— a number of methods applied, or applicable in grouping multifeature units, from the simplest to the most intricate ones—including mathematical methods—have been scrutinized and tested to ensure that the grouping are unarbitrary and the results obtained are comparable both in time and space,

— new original methods fulfilling the requirements for typological studies have been developed,

— an attempt has been made to apply the typological method to study the changes in the spatial structure of Poland's agriculture and to work out a hypothesis of its future development.

METHODOLOGICAL PRINCIPLES

The following methodological assumptions have been made for the research projects realized in the Department of Agricultural Geography :

— Agriculture is a highly complex system of interrelated and interdependent phenomena which have developed in definite natural conditions and result from certain socio-economic processes.

— The concept of type of agriculture is of systematic or taxonomic character. It is employed in studies of agriculture in its entirety. The type of agriculture is defined by virtue of the mutual relations of all the distinctive features of agriculture as it is, including social and ownership relations, organizational and technical as well as production characteristics. External conditions, both natural or other in which agriculture develops are considered to explain why a given type has emerged in some place at some time.

— The concept of type of agriculture is dynamic in character, as the specific features of the agriculture may change under the impact of external conditions, eventually resulting in the emergence of a new type. Some types of agriculture decline and disappear whereas others expand over new territories on which other types prevailed before. Simultaneously, new types appear in consequence of changes in both the external conditions and in the internal features of agriculture itself.

— The concept of type of agriculture is essentially hierarchic in character. A sequence of many orders of types can be distinguished, ranging from the level of individual farm through those based on units of different levels up to world agricultural types. The farm is the basic research unit but administrative units, villages, rural communities, can also be taken for this research purpose, and the typological features representing them are aggregates which indicate but averaged values for each of the units concerned.

— To be fully relevant typological studies must be based on an adequate and consistent choice of variables representing the features of agriculture itself. The variables ought to fill up all aspects of agriculture as completely as it is possible.

Employing the methodological premises concerning the typology of world agriculture in studies of types of agriculture in Poland the following characteristics have been adopted for diagnostic purposes.

A. Social and ownership characteristics
   1. Land ownership.
   2. Land operation.

B. Size of holdings
   3. In terms of the number of actively employed people for one holing.
   4. In terms of the total amount of agricultural land per one holding in hectares.
   5. In terms of the number of livestock in conventional (large) animal units per one holding.
   6. In terms of gross agricultural output in conventional units per one holding.
   7. Part-time farmers. The percentage ratio of the part-time farmers.

C. Organizational and technical characteristics
   8. Inputs of labour. The number of actively employed in agriculture per 100 hectares of agricultural land.
   9. Inputs of animal power. The number of conventional draught units per 100 hectares of cultivated land.
   10. Inputs of mechanical power. The number of tractors in HP per 100 hectares of cultivated land.
   11. Chemical fertilizing. The amount of chemical fertilizing in kilograms of pure content (NPK) per hectare of cultivated land.
   12. Irrigation. The percentage ratio of irrigated to the total cultivated land.
   13. Intensity of cropland use. The percentage ratio of the harvested to the total arable land.
   14. Perennial crops. The percentage ratio of land under perennial and semi-perennial to the total agriculture land.
   15. Permanent grassland. The percentage ratio of permanent grassland to the total agriculture land.
   16. Intensity of livestock breeding. The number of livestock in conventional animal units per 100 hectares of agricultural land.

D. Production characteristics
   17. Land productivity. Gross agricultural production in conventional units per one hectare of agricultural land.
   18. Labour productivity. The amount of gross agricultural production in conventional units per one person actively employed in agriculture.
   19. Degree of commercialization. Percentage rate of commercial to gross agricultural production.
   20. Level of commercialization. The amount of commercial agricultural production in conventional units per one hectare of agricultural land.

E. Structural characteristics
   21. Production orientation. The percentage rate of animal production to gross agricultural production.
   22. Orientation of commercial production. The percentage rate of animal production to commercial agricultural production.

Of course not all of these characteristics, which are taken from the typology of world agriculture, are very significant in Poland. If they are retained in this study it is because they make possible a comparison of the results with those obtained in other studies, i.e. a comparison of types of Polish agriculture with the model types of world agriculture.

Equally important as the selection of typological characteristics is the adequate choice of the method of grouping multifeature units which would make the results comparable in both time and space. Previous studies employed different methods of matching typological characteristics, from typograms through a number of various taxonomic methods to the taxonomic method called the deviation method in its "*model*" variant A. This study also uses the deviation method but in its different variant.

The deviation method as applied in typological studies requires the normalization of the indexes representing the selected characteristics of agriculture.

These indexes are calculated in various measurement units (persons, kilograms, horsepower, physical and conventional animal units, monetary units, grain units, percentages etc.) and at various magnitudes which makes their matching very difficult. Their normalization is performed by substituting each index by a figure indicating the place of the given feature value in the tables of five classes (1—5) based on the world ranges of a given phenomenon which have been adopted for each typological characteristic in the typology of world agriculture. (Fig. 1).

Classes		Social and ownership characteristics					Organizational and technical characteristics									Production characteristics				Structural characteristics	
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	very low	2	5	2	100	20	3	2	6	10	10	0,1	10	20	10	5	40	20	3	20	20
2	low	8	20	10	900	40	15	8	15	30	25	0,3	20	40	30	20	100	40	12	40	40
3	medium	50	50	50	40000	60	40	16	36	80	50	0,7	40	60	80	45	250	60	30	40	60
4	high	200	200	200	80000	80	150	30	90	200	80	1,3	60	80	180	100	600	80	80	80	80
5	very high	over 200	over 200	over 200	over 80000	100	over 150	over 30	over 90	over 200	400	over 1,3	400	400	over 180	over 400	over 600	400	over 80	400	400

Fig. 1. Selected diagnostic features and variables representing then.

In such a way a common foundation for all typological characteristics is obtained which permits to make comparisons of resuits in time and space. The values specific for each of the typological characteristics have been expressed by a code of four figure-groups expressing social and

ownership characteristics, organizational and technical chtaracteristics, production and structural characteristics, respectively, for each of the basic units included in the study. For instance, the code for the Pruszków powiat is 1.1.2.2.2.—4.4.3.4.1.4.1.1.3.—4.3.4.4.—2.2

Calculating the distances between the studied basic units on an "each to each" basis, that is

$$So = \sum_{j=1}^{j-n} (a_{k1} - a_{l1}) + (a_{kn} - a_{ln})$$

to obtain the distance matrix, where

So = distance between studied units

k,l = two arbitrary units of the studied aggregation

$1-n$ = successively considered standardized typological characteristics

— The calculated matrix of distances is then ordered by means of the table of similarities and the delimitation of types is performed on the ground of the following criteria :

— The identification of types is based on differences between the reference units represented by definite standardized typological characteristics occurring in no more than one-sixth of the studied features and accounting for no more than one-sixth of the total of all studied typological characteristics.

It frequently happens that the basic units have features common to two neighbouring types or subtypes. Such units must then be viewed as transitional ones. Additional studies and interpretations should make it possible to draw boundary lines between types thus disposing of such transition areas.

TYPES OF AGRICULTURE IN POLAND IN 1960 TO 1970 AND THEIR CHANGES

Using the abcve-discussed criteria and methods for individual agriculture in Poland, the accepted variables for over 300 powiats both in 1960 and 1970 were computed. Then powiats were grouped according to their similarity into 21 types of 1st order (Fig. 2, 3).

The last ten years were a period of considerable changes for Polish agriculture. The rate of these changes differed greatly from area to area. The changes affected various aspects of agriculture and they can be generally described as follows. The size of private holdings did not change significantly in that period, nor did the overall level of labour inputs in agriculture in spite of the progressing decline of a number of actively employed persons and the growing proportion of part-time farmers (called in Poland peasant-workers).

On the other hand, inputs of mechanical power and particularly in fertilizing increased considerably. Livestock number and the achieved production effects—including land and labour productivity and the degree of commercialization—are all observed to have risen.

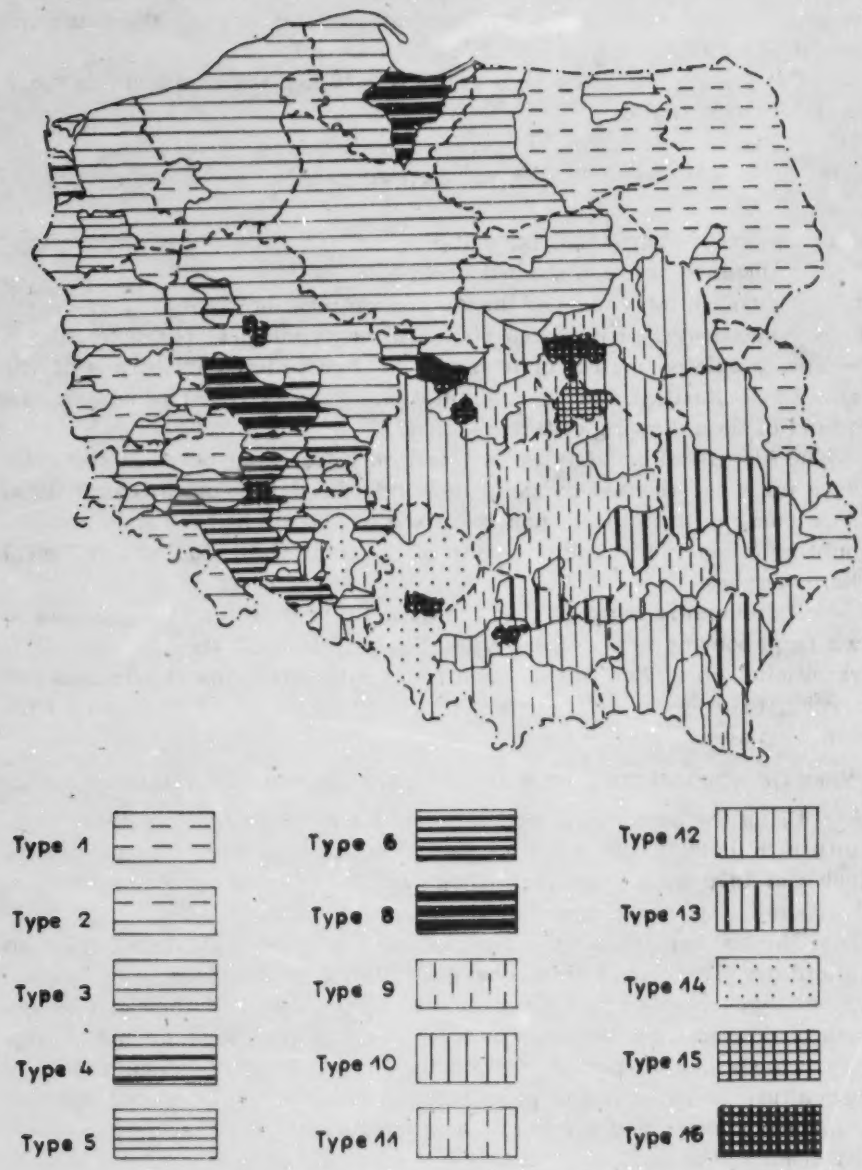

Fig. 2. Types of agriculture in Poland 1960.

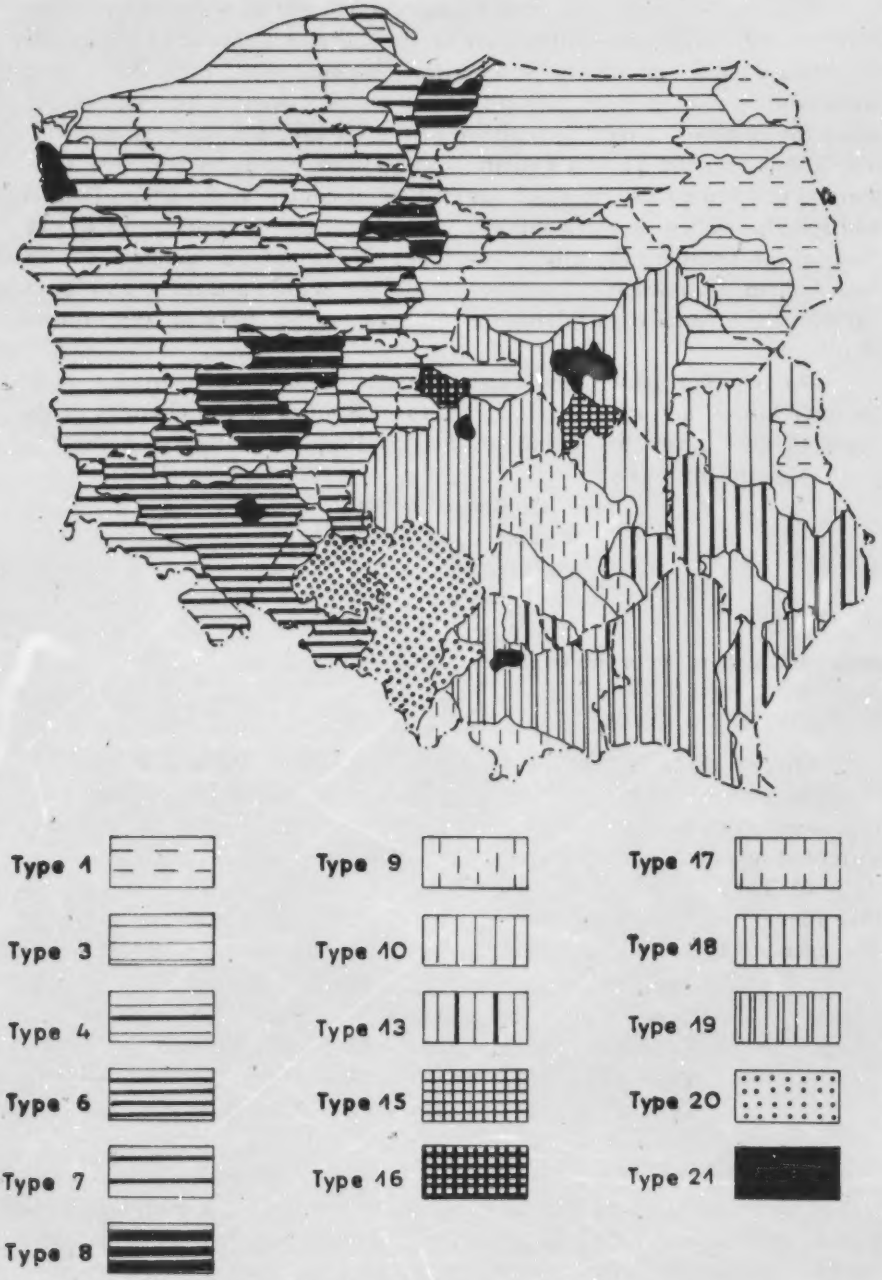

Fig. 3. Types of agriculture in Poland 1970.

The overall impact of these changes made Polish individual agriculture move from a semi-commercial or (in the east and south) traditional semi-subsistence agriculture closer toward a commercial agriculture. Notwithstanding the changes, though, there are still spatial differences between the commericalized agriculture of the Greater Poland region, of Lower Silesia and the Vistula Fenland (Żuławy) on one hand and semi-commercial or even commercialized agriculture of central and eastern Poland, and specific agriculture of southern Poland and the agriculture of the industrialized areas on the other. The types of agriculture changed too. Some of them disappeared altogether, the other which are more stable occurred in the same areas changing in character but very slowly and insignificantly.

On te other hand, new types emerged which represented a more commercialized and specialized agriculture. Studies of the changes in the types of agriculture in Poland in 1960 to 1970 have suggested the following groups of types:

discontinued types
disappearing types
stable types
developing types
new types

each of which reflects the trend of changes.

I. DISCONTINUED TYPES

This group includes types of agriculture which existed in 1960 but disappeared by 1970 together with the changes in Polish agriculture. They represented traditional poorly commercialized and largely subsistence-oriented agriculture (types 2, 11, 12, 14) or semi-commercial agriculture (type 5). They have been superseded by types of more intensive agriculture expanding from neighbouring areas or by new types. The group of discontinued types characterized by codes is composed of the following:

Type 2 — 11222 — 431314123 — 3233 — 34
Type 5 — 22221 — 341314113 — 3333 — 23
Type 11 — 21221 — 331314114 — 3223 — 34
Type 12 — 11211 — 441314114 — 4223 — 35
Type 14 — 11112 — 431414113 — 3223 — 34

II. DISAPPEARING TYPES

This group includes several types which are declining with the changes in agriculture giving way to more intensive types or undergoing gradual evolution. They represent poorly commercialized and often traditional agriculture (types 1, 9, 10, 16) or non specialized semi-commercial agriculture (type 3). As a rule they are superseded by more intensive types,

e.g. type 1 was superseded by type 3, or else by new types, type 3 superseded by type 4 of higher degree of commercialization and advanced specialization. The group included, and continues to include, the following :

Type 1 — 22221 — 341214123 — 3222 — 34
Type 3 — 22221 — 331314133 — 3333 — 34
Type 9 — 11221 — 441314123 — 3222 — 35
Type 10 — 21221 — 441314113 — 3233 — 35
Type 16 — 11221 — 441314113 — 4333 — 22

III. STABLE TYPES

This group includes types of agriculture which existed, and continue to exist, in the same areas but which also undergo gradual evolution. They also represent semi-commercial agriculture of more advanced specialization :

Type 13 — 21221 — 441214114 — 4233 — 33
Type 15 — 22221 — 431314213 — 3333 — 23

IV. DEVELOPING TYPES

This is a group of types which appeared already before 1960 representing the highest level of the agriculture of that time, that is, more specialized semi-commercial agriculture. In te course of ten years those types extended over the neighbouring areas superseding types of less intensive agriculture, such as type 4 extending over areas formerly belonging to type 3. This group includes the following :

Type 4 — 11222 — 332414113 — 3333 — 34
Type 6 — 11221 — 441414113 — 4333 — 23
Type 8 — 22221 — 342414113 — 4333 — 34

V. NEW TYPES

The group of new types includes those which emerged after 1960 in effect of the progressing changes in agriculture. As a rule they represent more intensive types of agriculture than those known before. For instance type 7 occurs in place of type 3, or type 20 in place of type 16, which now represent commercial and more specialized agriculture, or type 19 in place of type 12. In this case, though, the poorly commercialized and subsistence-oriented agriculture of southern Poland has been transformed into an agriculture marked by a much higher degree of commercialization and the beginning of specialization. The following belong to the group of new types :

Type 7 — 22222 — 33341423 — 4333 — 23
Type 17 — 11211 — 441414124 — 3222 — 35
Type 18 — 11221 — 431414123 — 3323 — 35

Type 19 — 11222 — 442414114 — 422 — 34
Type 20 — 11113 — 433414123 — 4333 — 34
Type 21 — 11222 — 443414113 — 4344 — 22

The trend of changes in agriculture as disclosed in the study of the 10-year period can be utilized in spatial planning. The results can be used as the foundation in formulating a hypothesis of development of agriculture as well as in developing variant solutions.

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METHODOLOGY OF STUDYING THE AGRICULTURAL-GEOGRAPHICAL ASPECTS OF MOUNTAINOUS AREAS

INTRODUCTION

Mountainous areas occupy in the Socialist Republic of Slovenia over a half of the entire territory—which at the same time means also a considerable part of the agricultural surfaces. Great variety of landforms, different altitudes, different lays and expositions of the land, great variation in the rock composition, diffe.ent slope expositions—these are factors determining changes in the geo-ph.ysical conditions for agriculture at very short distances. The rapid changing in the physical factors has always been giving rise to great differences in te relative evaluation of the natural potential for agricultural land use. Itself a function of the socio-economic development, farming has at each particular stage of development imparted to certain elements in the physical development a different significance and a different value. The value of some physical factors has been in particular redefined by the scientific-technical revolution, which was triggered off thorough-going changes in the farming economy in mountainous areas. This is the reason why in a period of the scientific--technical revolution mountainous areas represent for farming a particular kind of economic region that has to be studied from specific points of departure.

PRINCIPAL POINT OF DEPARTURE FOR STUDYING THE AGRICULTURAL-GEOGRAPHICAL ASPECTS OF MOUNTAINOUS AREAS

Any agricultural-geographical reality may be found to be determined by three groups of factors, specifically by :

— Man in a given socio-economic environment,
— geo-physical conditions,
— the overall degree of the socio-economic development.

The geographical reality of an agricultural area will be understood only after we have investigated the role and significance of individual factors as operating in the complete set-up of the geographical environment.

Man in a given socio-economic environment. This group of factors comprises all those social, economic, political, and cultural factors which

arise from the local conditions. In areas which have undergone revolutionary changes (transfer of land into the socially-owned sector, agrarian reform, rounding-off of smaller holdings into bigger complexes of land, farm consolidation . . .) numerous negative influences persisting from the past have been eliminated and therefore the influence exercised by the local centres is smaller while influences stemming from non-agrarian activities are stronger. On the other hand, in areas where the agricultural structure (forms of settlement, division of land, landownership conditions, etc.) is the result of long periods of development influences persisting from the past are considerably stronger. The structure has been shaped in the course of the centuries on the basis of criteria and values as valid in individual periods. But the contemporary socio-economic development has greatly modified the value of these criteria. Therefore we invariably witness bigger or smaller contrasts between agrarian structures as handed down by the past and the present-day value of the geo-physical conditions ; these contrasts are all the bigger in proportion to the oldness of the criteria on which a given agrarian structure is based. These contrasts give rise to inner tensions which in turn lead to motives, wishes and tendencies to destroy the outdated forms of agriculture in a given area.

The overall degree of socio-economic development. No part of the world is an isolated island, every part is connected with the surrounding world by numerous ties. Therefore any particular environment is under the influences stemming from the overall degree of the socio-economic development of the country, the state, and the world. These influences are mirrored in the general technological progress (in particular in the development of agrarian technology and the measures determined by it), in the rise of the productivity of human labour and with the related increasing specialization and mechanization of farming. Therefore the overall or broader degree of the socio-economic development shapes also the criteria for the productivity of both the natural potential and of human labour, the criteria for directing the land use in accordance with the natural potential and a purposeful market orientation. But as it happens, big differences may often exist between the overall socio-economic development, the development of agrarian technology and measures determined by it, in short between the full-scale conception of modern farming on the one hand and the views and attitudes of the agricultural population on the other. In area where private landownership predominated it often happens that the views and attitudes of the farming population develop at a much slower speed than the socio-economic and technological conditions. Therefore we can at almost any stage find bigger or smaller discrepancies between the overall socio-economic development and the development of the farmer's views and attitudes ; these discrepancies are increasing in proportion with the rapidity of the socio-economic development and with the

educational and cultural backwardness of a given area. For this reason the transformation processes are not always a reflection of rational approaches and economic laws but of given possibilities of observing these principles in a given geo-physical and socio-economic setting.

Geo-physical conditions. In studying the agricultural-geographical aspects, geo-physical conditions must be viewed from a particular angle, from the angle of what they represent for agriculture. Investigation goes along two lines:

— studying the absolute values of geo-physical conditions,
— determining the relative values of geo-physical conditions.

Studying the absolute values. The main aim is to study and find out the absolute values of the geo-physical conditions for the purposes of agricultural land-use. This is in its essence not the business of geography but of other disciplines (pedology, agronomy, climatology, etc.). But very often relevant information is not obtainable and so we have to collect it ourselves. Agricultural geographer studies not only the elements in themselves but also their interdependence and interaction as well as their significance for the whole—in our case for agriculture. The criteria for determining the absolute values are those for optimal yields from individual cultural crops. Only after the absolute values of the individual elements have been established can we pass on to an agricultural-geographical synthesis of the geo-physical conditions and determine the absolute natural potential from the viewpoint of agriculture. This evaluation may rely on the results and interaction of various geo-physical elements and factors, or it may be determined by the predominance of a particular group of elements or by the predominance of a particular element or factor (e.g. temperature, humidity, steepness, etc.).

Determining the relative value. A relative evaluation of the geo-physical conditions from the viewpoint of the overall socio-economic and technological development brings out the natural potential of an area for the purpose of a particular form of human activity in given time and place. The evaluation of the natural potential for the purposes of agriculture from the viewpoint of the local socio-economic and technological development reveals on the one hand the degree of how much the area in question lags behind the overall development and, on the other, inner tensions triggering off changes in the agricultural pattern.

Absolute and relative evaluation of the individual elements of geo-physical conditions must be based on application of objective criteria, i.e. such that are not—or are at least as little as possible—dependent on man's subjective assessment. Although the objective character of a particular criterion may often to an extent remain problematic, an understanding of the criteria, methods and techniques facilitates subsequent corrections.

ASPECTS OF AGRICULTURAL-GEOGRAPHICAL RESEARCH

In countries where private landownership is either predominant or gaining in size the evaluation of the natural potential is affected not only by the general and the local degree of socio-economic development but also by the influences exerted by the social status of the landowners. In such an environment the current relative value of the geo-physical conditions for the purposes of farming has a double value : the so-called general social value and the social class value.

The general social value of the geo-physical conditions is in every environment valued with reference to the socio-economic development and has a theoretical and practical importance. In the Slovene agricultural land such evaluations have been known since the feudal times. Their practical manifestation is to be seen in the way how contribution margins and tax groups have been fixed. The current land-tax and tax on forest surfaces is essentially fixed with reference to similar considerations.

The second, social class value of the natural potential is based on an individual's evaluation and depends on the size of the farm, social affiliation of the owner, and on the degree of the socio-economic and cultural development in a given area. In the study of agriculture in countries where private landownership is predominant both aspects and not just one of them are to be taken into consideration. The first, general social value may serve as an indicator of the average value, as a point from which positive or negative trends can be detected. The second value is class-conditioned and brings out how the general social value of geo--physical conditions is being assessed by individual social groups in a given social setting.

APPLICATION OF THE METHODOLOGY IN THE STUDY OF AGRICULTURE IN THE MOUNTAINOUS AREAS OF SLOVENIA

At the time when our mountainous areas started to be exploited for agricultural purposes the farming was almost exlusively relying on work with the hoe and oriented towards self-sufficiency. In such circumstances the main factors guiding the prospective settlers were the micro-climate and the size of holdings to be acquired. In mountainous regions the micro-climate required much more consideration than the steepness of land or other geo-physical factors. Therefore in the settlement of te Slovene mountainous areas the following was almost the rule : the higher the altitude, the more are the agricultural patches of land concentrated on the steep, sunny slopes ; even grounds or at least those with small inclination at the same altitude are not infrequently because of te smaller insolation or increasingly marshy territory allocated for forests or pastures.

These criteria were determining the colonization of the mountainous areas for centuries up to the period of industrialization. The development of industrialization brings also in the agriculture a more up-to-date tech-

nology, while at the same time—because of emigration and re-structuring—the number of agricultural population decreases. With the introduction of the iron plough steep surfaces became less suitable for farming and are therefore being turned into grassland, but still as part of the farmer's land. But these changes are determined by the social situation. Bigger landowners cease to cultivate fields on slopes and these gradually turn into grassland, whereas smaller landowners and peasants continue to till them.

During the last ten years it is also in the mountainous areas of Slovenia that the effects of the scientific-technical revolution have made themselves felt. This is to be seen above all in the rationalisation of labour, i.e. in the introduction of agrotechnical mechanization and in the reorganization of agriculture from the old, polycultural and subsistence farming to a specialised production for the market. The reorganization of agriculture and the rationalization of the labour to be invested have brought about a revaluation of the geo-physical conditions. Microclimatic conditions, for centuries the leading factor determining the colonization of mountainous areas, are now losing in their significance whereas new feactors are gaining in momentum ; the slope of the land, the size of particular pieces of land.

The slope of the land represents now that leading factor on which it depends whether particular pieces of land will continue to be used for farming or will gradually turn into forest land. An exception to this may be regions suitable for growing certain special crops ; here the making of terraces must be justified by economic reasons. Accordingly, the evaluation of mountainous areas is today to be made on the basis of their gradient. Considering the possibility of using mechanization and the profitableness of growing particular crops we may—according to the gradient —identify the following groups :

a) Land with a gradient up to 10 per cent equals in its value flat land since agricultural mechanization can be used on it.
b) Land with a gradient from 10 to 15 per cent is still very suitable for agriculture because on such land a great deal of mechanization can be used and so all the agricultural crops suitable for growing in the particular ecologic environment can be grown.
c) Land with a gradient from 15 to 18 per cent is already less suitable for farming. Only light mechanization can be used here ; this is obviously more expensive and the productivity is lower. The number of different crops to be grown here is limited. For row crops such slopes are no longer suitable since water carries away too much soil, also manuring is thus becoming less and less profitable. Such land is suitable for growing grass.
d) Land with a gradient from 18 to 22 per cent is only partly suitable for farming. It can be used for meadows and pastures, but not for crop growing since the use of mechanization is here not possible and manuring not profitable.
e) Land with a gradient over 22 per cent is according to present-day evaluation no longer suitable for farming and as such it is good merely as forest land.

When particular pieces of agricultural land to a degree satisfy the criteria set out above, the new evaluation of agricultural surfaces takes into consideration the second factor—how large are particular pieces of land. Small, isolated and considerably dispersed pieces of land are not suitable for farming. Either are too small for mechanical tilling or they lie too far away one from another and so too much time is required for going from one to the other. The distances still suitable for present-day purposes and the minimal size of fields represent an open question (cf. the studies by Malovrh). In this context it is the social-class momentum which is coming to the fore. Larger farmers have all abandoned the cultivation of smaller fields, while farmers with smaller holdings still continue tilling them. Unusually great differences in this respect are to be found also between estates run by purely farming families and those run by families whose members are partly employed outside farming.

Only when a particular piece of agricultural land with its gradient and size meets these new criteria, other geo-physical conditions important for farming acquire their significance.

These criteria for the evaluation of the geo-physical conditions for agricultural land use are, of course, socio-economic ones and do not include numerous other aspects (as for instance : the question of national defense, the possible question of obtaining food irrespectively of the cost, tourism, etc.).

These are the criteria that have by now for already a quarter of a century been changing the Slovene mountainous regions and effected considerable shifts in the economic orientation and the physiognomy of the country.

The shifts are to be seen primarily in the following :

a) Afforestation. This is here taken to include both organized ways of converting fields and meadows into forest land as well as the abandoning of such surfaces to become overgrown with shrubbery and trees. This process is quite strong in some cadastrial parishes (with more than 40 per cent of their areas occupied by forests). Slovenia as a whole is becoming a woodland country : in 1954 42.5 per cent of its territory was covered by woodlands, in 1967 already 44.8 per cent, and in 1972 as much as 50.2 per cent. In reality the percentage is probably higher since statistical information cannot be taken to be fully up to particular dates. Most of the afforestation is of course going on in mountainous areas and in karst land.

b) Grassland. During the last twenty years a substantial amount of fields have been converted into meadows. The area covered by meadows has been enlarged for 37,000 hectares (11 per cent). The specialisation in dairy-farming cattle-breeding accounts also for the large amount of pastureland in the mountainous areas of Slovenia.

With the increase of the areas of forests and permanent grassland the areas of fields have decreased for 48,000 hectares (14 per cent), again mostly in the mountainous areas and in karst land.

Progressive or conservative orientantion of agriculture in mountainous areas has to be assessed with reference to such criteria as the slope of the land, the size of particular pieces of land, and the characteristics of the soil. Likewise it is essential to take into consideration possibilities for rationalization (labour, mechanization, manuring) as well as the market orientation. Progressive orientation or conservatism are to be viewed not only from the viewpoint of the local or general degree of socio-economic development or from the angle of geo-physical conditions but also in the context of the particular different land-ownership groups.

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SOCIO-ECONOMIC CHANGES IN THE HOP-GROWING REGION OF THE SPODNJA SAVINJSKA DOLINA (LOWER SAVINJA VALLEY)

Over the last hundred years the Lower SavinjaValley has undergone important structural and physiognomic changes hardly to be paralleled by changes in other agrarian regions in Slavenia. The reasons for these radical and rapid changes are to be sought in the shifts that occurred in the orientation of farming. Even if the restructuring on a larger scope started only in the last quarter of the previous century and continued for the 15 years prior to World War I, its roots go deeply into the mid-19th century. With an official decree issued in 1848 the Slovene peasant became relieved of the subjection and of the numerous feudal burdens inherited from the medieval time. With the emancipation of the peasants and impact of the industrial revolution, exemplified particularly well by the building of the central railway network, which contributed towards the awakening of the Slovene towns and of the first centres of non-agrarian activities, a new period in the transformation of the Slovene rural regions began. Its most important feature was the re-shaping of the relations between the countryside on the one hand and the towns and younger non--agricultural centres on the other. In the period of early capitalism in Slovenia, where the process of its development was already modified through the conditions of the Austro-Hungarian monarchy (of which Slovenia was a part), some of the feudal landlords again sensed a possibility for increasing their wealth or rather their basic capital. The emerging industry represented for them yet another opportunity to become directly involved in current socio-economic developments by developing industrial plants, i.e. increasing production of industrial raw materials. Also in the Lower Savinja Valley some of the former feudal big estates tried—through restructuring and specialization of their production (e.g. sericulture) to become actively included in the increasingly stronger monetary currents characteristic of early capitalism. Thus the production of hops, an important commercial industrial plant, the first experimental plantations of which go back in the Savinja Valley towards the beginnings of the 1850 —ies promised opportunities for at least some agricultural land to speciali-

ze for the purposes of rapidly developing breweries in industrial countries. The presented socio-economic trends give a rough outline of the general state of affairs in the Slovene countryside in the mid-19th century.

CHARACTERISTIC PHASES IN THE DEVELOPMENT OF THE PRODUCTION OF HOPS IN SAVINJA VALLEY

To facilitate a better understanding of the present-day processes in the transformation of the hop-growing area it will be useful to give the main characteristics in a historical perspective as leading up to the present state of this most specialized agrarian region in Slovenia.

PRODUCTION OF HOPS IN THE SECOND HALF OF THE 19TH CENTURY

The first bigger and more permanent plantations of hop in the Savinja Valley were started in the beginning of 1870-ies.[1] On the basis of some, largely statistical, information found in the archives and of some information collected from the local population we attempt to reconstruct an approximate picture of the Lower Savinja Valley in the last decades of the 19th century and of the first phase of the development of hop-growing.

With the emergence of the liberalistic stratum of urban population there begins in more and more crude forms also in this area a general unstratification and differentiation of the agrarian population and of the landlords. At the time traditional forms of polycultural and subsistence agriculture were, as a rule, still predominant. Only the production of wine and cereals plus the raising of cattle and horses made it possible for the Savinja peasant to become gradually included in the monetary exchange of goods. At this time it is also the role of forest that comes to the fore, because the importance of wood was extremely increased through the general economic development. And thus the economic power of those farms which owned forests had risen considerably.

With the increase of the number of inhabitants grew also the population density. Here lies one of the traditional reasons for the subdivision of land property. In the entire forest border of the mountainous regions of the Lower Savinja Valley the forests were being cleared in order to obtain new agricultural surfaces. Here we must not lose sight of the commonly-owned village ground (ca. 355 hectares in 1890). The belated echo of physiocratism was making for the breaking down of the commonly-owned

[1] F. Baš, *Hmeljarstvo v Savinjski dolini* (Hop growing in the Savinja valley), Geogr. Vestnik 1, Ljubljana 1925, p. 40—52; L. Kač, *Hmeljarstwo v Savinjski dolini* (Hop growing in the Savinja valley), Celjski zbornik, Celje 1951, p. 67—84; L. Kač, *Savinjski golding*, Savinjski zbornik 1, Celje 1959, p. 244—267; M. Žagar, *Savinjska dolina in hmelj* (Savinja valley and hop growing), Celjski zbornik, Celje 1957, p. 9—33; J. Slokan, *Berilo o hmelju* (Informations on hop growing), Celjski zbornik, Celje 1965, p. 25—91.

village land and its subdivision among the village inhabitants entitled to their shares of it.[2]

It was only with the regulation of the river Savinja (from 1876 to 1893) that the formerly commonly-owned land along this river acquired its full worth for the Savinja farm. This brought about a colonization of the land along the Savinja, on the surfaces formerly reserved for pastures there emerged fields and meadows and even smaller vine-growing surfaces. Likewise these surfaces represented new settlement areas for the younger people who were to start there smaller farms.

From the second half of the 19th century come the first beginnings of non agricultural activities in the Savinja Valley. Textile industry, breweries, the opening of smaller coal-mines on the southern fringe of the western part of the Celje basin, a smaller glass-works, and the manufacturing of pottery—these were the factors starting the initial phase of the disintegration of the numerically strong peasant family.[3] All along up to this time the strongest influence in favour of the transformation of this area was exerted by the coal-mining towns of the Black Revier (Zagorje, Trbovlje, Hrastnik)[4] and of the south-eastern Carinthia as well as by the vicinity of Celje (emigration, employment, sale of agrarian products, etc). When in 1891 the Savinja railway line had been built (Celje—Velenje) and before that the Vienna—Celje—Ljubljana—Trieste railway line, the carter traffic started to decline rapidly. A considerable number of former carters were from the Savinja Valley. This former traffic function of the Savinja Valley has remained preserved to this day in the physiognomy of some of the settlements along the main road (inns providing accommodation for carters, stables, etc).

Also we should not leave out of account some of the typical forms of peasant homes coming down from the previous times ; in their function their set-up was closely relying on the systems of the distribution of land. In the valley as late as at the end of the 19th century buildings made of wood and partly of stone were predominant (dwelling places, farmsteads), covered mostly with a thatched roof or with wooden boards.[5] Most of them had no other cooking facilities than those over the fireplace ; ovens and kitcheners were introduced only in the years just before the World War I.

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[2] J. Orožen, *Gmajne na področju srednje Savinje in njenih pritokov* (Pastures of the area of middle Savinja and its confluents), Celjski zbornik, Celje 1957, p. 153—190.

[3] J. Orožen, *Kratka zgodovina rudarstva in industrije v Spodnji Savinjski dolini* (Brief outline of mining and industry in the lower Savinja Valley), Savinjski zbornik 1, Celje 1959, p. 213—230.

[4] J. Vrišer, *Rudarska mesta Zagorje, Trbovlje in Hrastnik* (Mining centres of Zagorje), Ljubljana 1963.

[5] F. Baš, *Gospodarsko poslopje v Savinjski dolini* (Farm buildings in Savinja Valley), Časopis za zgodovino in narodjopisje, XXIV, Maribor 1929, p. 71—90.

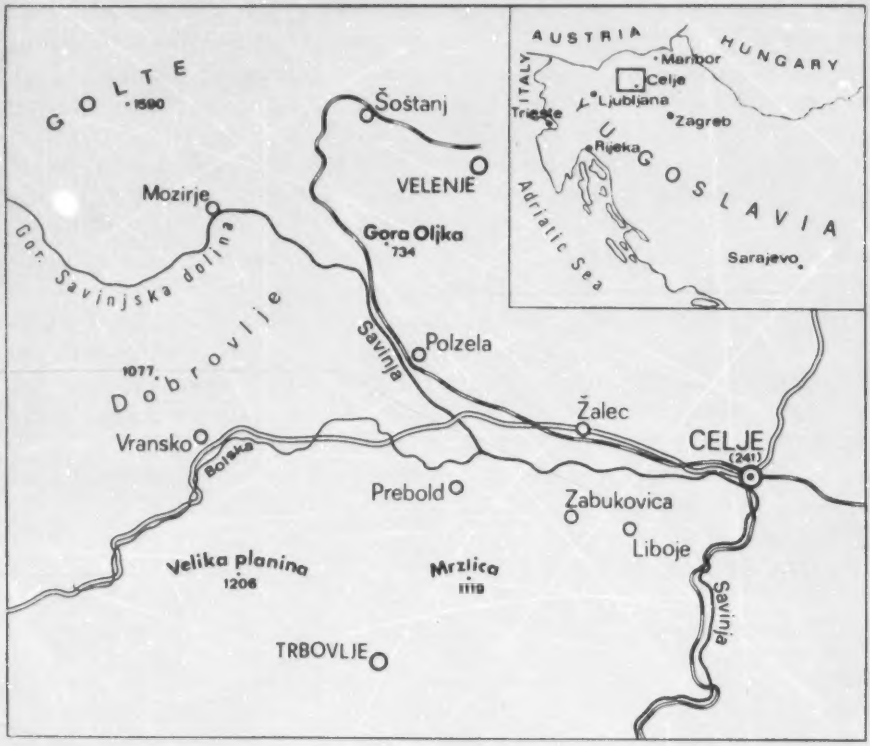

Fig. 1. Sketch-map of Spodnja Savinjska dolina (Lower Savinja Valley).

On the farmsteads we find now already single and double hay-drying frames,[6] as well as more practical facilities for drying flax, hemp, and fruit, pigsties, and by the side of vineyards either wooden or stone-built cottages intended for the purposes of vine-growing.

The economic changes outlined were reflected also in the demographic situation. By the end of the 19th century the percentage of non-agrarian population had not exceeded 20%, whereas from 1869 to 1900 the number of population had risen only by 13.9%. A calculation for the thirty years in question shows a migration deficit of—3.024 inhabitants, which gives an average annual degree of—4.34‰.

In the 1869—1900 period the birth rate stagnated and amounted only to ca. 32‰, whereas the death-rate started gradually to decrease (from 25.4 to 22‰). The rate of natural increase rose from 6.4 to 10.4‰.

In the circumstances as outlined above the hop-growing along the Savinja started to develop. Here one should not forget that at the time

[6] A. Melik, *Kozolec na Slovenskem* (Kozolec in Slovenia), Ljubljana 1931.

when hop-growing started the phylloxera had almost entirely destroyed the vineyards in this area. This has to be pointed out because both plants, hop no less than vine, are intensive plants requiring an unusually high amount of labour (for instance, per 1 hectare of hop plantation ca. 390 working days, per 1 hectare of vineyards in the hilly region ca. 266 working days in the growing season). At this point the local peasants were faced with making a far-reaching decision : either to continue growing and cultivating the already established vines, the product of which was increasingly difficult to sell, or to shift to the as yet uncertain hop-growing whose product was just at that time enjoying a boom on the world market. The decision was made to start hop-growing. With reference to the Lower Savinja Valley we may thus claim that hop was not only an economically equal successor but also a plant which was to expand the economic growth of the whole area.[7] Since the first hop plantations were small, there was because of the agrarian overpopulation and the insufficiently employed farming labour—no seasonal employing of immigrant workers. The earliest period of hop-growing which reaches down to the first decade of the present century left in the physiognomy of the area no particularly noticeable or permanent traces.

HOP-GROWING IN THE FIRST HALF OF THE 20th CENTURY

The second period in the development of hop-growing in the Savinja Valey extends over the first half of the present century. This period has left many marked traces in the present-day physiognomy of the entire area. From the geographical point of view this period is all the more important since it was during this time that the specific phenomena and processes of our hop-growing regions emerged and acquired a definite shape.

On the world market the price of hops was growing rapidly. This had as a consequence a rapid development of hop-growing surfaces which reached here just before World War I an amount of almost 1.700 hectares. During the ensuing war years the hop-growing surfaces were greatly reduced, amounting by 1918 only to ca. 500 hectares. But immediately after the first War, due to the increasing demand for hops, the hop-plantations increased unusually rapidly. This extensive expansion reached a high point in 1928 when there were in the Savinja Valley almost 3.000 hectares of hop-growing surfaces. During the years of the world economic crisis (1929—1932) hop was again to an extent abandoned in favour of other agricultural crops. Only in the middle of the thirties the hop-plantations are again increasing in size, and in the last years before the second War

[7] K. Ruppert, *Die Bedeutung des Weinbaues und seiner Nachfolgekulturen für die sozialgeographische Differenzierung der Agrarlandschaft in Bayern*, Münchner geographische Hefte, 19, 1960.

they occupied in Slovenia from 2.500 to 2.900 hectares, of which ca. 2.200 to 2.600 hectares were in the Savinja Valley.[8]

The boom of hops on the world market, reflected directly in the steep rising of its price, affected, of course, the expansion of hop plantations. These were by now covering no longer only the best surfaces in the valley and on even ground but had expanded also on fields, into the hills and along the foot of mountains. Hop-growing prospered everywhere up to the altitude of at least 800 metres above sea level.

The strong expansion of hop-growing entailed radical changes in the structure of crops sown. At this time hop-plantations occupied from 20 to 60% of field surfaces. Besides, hop-growing was rapidly spreading also outside the narrower area of the Celje basin. It is in this period that a marked specialization and commercialization of the farming in the Savinja Valley begins. This, however, had a specific consequence: the fate of the farming in this area, its future and prosperity, was increasingly becoming dependent on the ups and downs of world economy. This was particularly felt by most of the hop-growers during the time of the world economic crisis.[9]

In the inter-war period hop-growing leads to a decay of the aut--archic and polycultural farming. Flax, hemp, and broad beans had almost vanished from the local fields. Related to this as well as to other causes is the decline of locally home-spun linen. Also the surfaces so far growing cereals had been strongly diminished and many farms now had to buy flour and maize. Cattle-raising was in considerable expansion but nevertheless overshadowed by hop-growing, although it was stable manure and the first fertilizers by means of which the farmers were increasing the production of hops and the yield per hectare. In hilly and mountainous regions horses, oxen, and cows still represented domestic animals used for work in the fields and for transportation. The technology of tilling the soil was changing. Iron ploughs and harrows had now replaced the previous implements made of wood. New farming tools, particularly for work in the fields, were introduced, especially for a more modern cultivation of hop plantations.

Those vineyards (in 1896 still ca. 670 hectares of them, while in 1880 ca. 2.550 local peasants still had 800 hectares of vineyards) which were located rather far away from farmsteads were now gradually being abandoned. The cottages in the vineyards were either destined for decay or were converted into dwelling places for the proletariat. At the beginning of the century there emerged large and modernly organized plantations of fruit trees, particularly around the settlements. Only in some

[8] L. Cukala, *Problematika hmeljskega trga*, (Problems of hop market), Celjski zbornik, Celje 1965, p. 93—147.

[9] M. Natek, *Gomilsko, hmeljarska vas v Sovinjski dolini*. (Gomilsko, hop growing village in the Savinja valley), Geogr. zbornik 7, Ljubljana 1962, p. 69—142.

parts of the southern and northern hilly fringe, orchards had been started in abandoned vineyards.

In this period the development of the hop-growing in the Sevinja Valley has to be viewed also in the light of the industrialization of the area and in the context of the growing urban centres on the fringes. At this time there emerged in the western part of the Celje basin (which part was most specialized in hop-growing) numerous smaller industrial and manufacturing works. Rapidly growing was also the production of coal in the coal mines situated either on the outskirts or in the vicinity of the hop-growing area (Liboje, Zabukovica). The entire Savinja Valley was directly within the scope of their gravitational nuclei. Here the unneeded manpower from the local farmsteads found work and wages. This was accelerating the deagrarization of the Lower Savinja Valley. While in 1900 the hop-growing area in the Savinja Valley still had ca. 74% of agrarian population, the corresponding percentages for later years are as follows: in 1910 ca, 65%; in 1931 ca. 62%, and in 1948 only slightly over 50%.

This period was to witness a significant change in the biological growth of the population. The birth-rate had decreased from 30.8‰ during the 1901—1910 period to 18.7‰ during the 1931—1948 period. Also the death-rate underwent a rapid fall (from 20.8 to 15.3‰), and a comparable fall is to be noticed also for natural increase (from 9.9 to 3.4‰). (Here the victims of World War II affect the figures). During this time the number of population was rising by an average annual degree of 0.53%. However, it remains a fact that hop-growing could at no point wholly stop the emigration of autochtonous population, although it did mitigate it. From 1901 to 1948 the emigration from the Lower Savinja Valley exceeded the immigration by 4.668 persons. But it also has to be observed that the intensity of emigration was gradually becoming weaker (1901—1910: −9.2‰, 1911—1931: −5.4‰, and 1931—1948: +1.1‰).

With the emergence of large hop plantations the need arose for an extraordinarily big number of workers that the partly deagrarized farmsteads were no longer capable to provide in full. This meant a favourable moment for seasonal employment of the local semi-proletariat. Among the seasonal workers we find now more and more of people from the economically underdeveloped and agriculturally overpopulated regions of the eastern and north-eastern Slovenia. In the second half of August and in the first days of September the Savinja Valley received as many as 20 to 30 thousand hop-pickers, i.e. a number exceeding that of the local population. Seasonal workers were coming from all border regions, thus from the valleys Tuhinjska dolina and Gornja Savinjska dolina, from the Velenje basin, from the coal-mining area of the Black Revier, from Kozjansko, Haloze, Dravinjske gorice, Ptujsko polje, and from the area along

the Sava. Thus it is reasonable to claim that the expansion of the hop-plantations in this area at the same time represented an expansion of the gravitational field. This is to be seen not only in the number of settlements giving the urgently needed manpower but also in the degree how far reached the purchasing power of the hop-growers (e.g. purchasing hop-poles, purchasing coal to dry the hops, purchasing agricultural machinery, foodstuffs, etc.). We may, accordingly, say that the hop-growing of the second period shaped and expanded its gravitational field. But at the same time this area was under strong and radical influence of all the near and neighbouring non-agricultural centres. Here as well we may seek for one of the numerous reasons for the quick and thorough going transformation of the entire area.

But the extremely rapid development of hop-growing in the Savinja Valley was also to have a negative side to it. Big investments in new and large hop plantations, the reorganization of homes or dwelling places, the education of children—all of these were not infrequently done on the basis of loans. But in the years of the general economic crisis, when the costs of the production of hops were often bigger than the profit from selling, many of the hop-growing families found themselves on the verge of economic decline. At that time many of the local farmsteads became impoverished or even decayed. Their land passed into the property of such persons as foreign land-owners, industrialists, or local shop-keepers and pub-owners, wood merchants, etc. At this time a great many local farmsteads experienced disintegration and decay.

In spite of all this it was this period which was to impress on the entire hop-growing area a characteristic physiognomy. At the beginning of the century larger and more solid farms already had facilities for drying hops, installed in an annex to the farmestead. The houses and the related buildings were either newly built or thoroughly renovated. The intensive shift in agricultural economy led to abandoning of granaries. The traditional forms of farmsteads were generally wiped out by the building of new buildings, imitating houses of the outskirts of bigger towns. The manner and form of the village life as pursued by the local peasant changed and came close to the urban type.[10] This was most clearly manifested in the changes in daily feeding, clothing, etc. In the social aspect, additionally, we notice a decay of the formerly firm form of village communities.

POST-WAR SOCIO-GEOGRAPHICAL CHANGES

The World War II had in many respects unfavourable effects on the Slovene—and in particular the Savinja Valley—hop-growing. During that

[10] F. Baš, *Življenjski nivo kmeta* (Peasants' standard of living), Socialni problemi slovenske vasi, vol. 1, Ljubljana 1938, p. 117—122.

time the hop-growing was reduced to a barest minimum. By the end of the last War only some 550 hectares were planted with hop. Up to 1949 the hop-growing surfaces were slowly expanding (by about 100 hectares per year), but in 1950 they expanded for 480 hectares. This rapid increase was followed by a slower expansion up to 1959 (ca. 120 hectares per year), and in that year the total amount of surfaces growing hop in Slovenia reached the pre-war amount. Since that year the hop-growing surfaces in Slovenia have not experienced any further expansion (stagnation between 2.400 to 2.600 hectares).

Today the Lower Savinja Valley has approximately 68% of the Slovene hop-growing surfaces. Of these 51% (or 875 hectares) are owned by private farmers.[11] In the post-war years, when the conditions for the production of hops were most favourable, approximately 2.650 farmers (i.e. 58% of the land-owners in 1960) produced hops. At that time hop-plantations occupied an average of 32.3% of field surfaces. As much as 88% of the 1800 hectares of hop plantations was privately owned. But in recent years the bulk of hop plantations became concentrated in plain surfaces. Smaller plantations are still to be found on the fringes of the valley. On the other hand, in the hilly or mountainous regions there is an increasing amount of settlements where hop-growing is in its last phase or already on the way out.

The reasons of the present-day structure of the farmers' hop plantations, tilled on the surface of 875 hectares by only 1.152 farmer hands, have to be sought in the strong deagrarization, in the rapid restructuring of farmholds, as well as in the continuous strengthening of the socially-owned farming sector. Of the 3.845 farms in the Savinja Valley only 1.818 of them are purely agricultural ones, the rest of them relying for their basic living on sources outside farming. As late as in 1961 there was 24.5% of farming households and ca. 47% of non-farming ones; but in 1971 the corresponding percentages were only 11.4% and as much as 71%.

In the last twenty years the percentage of agrarian population in the Savinja Valley has decreased from 42.3 to 23.2%. The reasons for this will be found not only in the industrialization which had reached the entire area but also in the character and expansion of the industrial centres on the fringes of the hop-growing area. Today 77% of the inhabitants employed outside farming daily commute to their working place (in 1960 the corresponding percentage was 60%). Besides the old non-agrarian centres which have for a long time attracted the local peasants we get in the very recent time the industrial centre of Velenje. As long as Velenje was only a coal-miners' town, the inhabitants from the Savinja Valley showed little interest in seeking employment there. But having

[11] B. Pugelj, *Razvoj zasebnega kmetijstwa vletih* 1965—1971 (Development of private peasants in 1965—1971), Savinjski zbornik 3, Celje 1973, p. 126—134.

developed light industry, Velenje has become rather more interesting for a considerable part of the deagrarized population from the Savinja Valley.

Along with the deagrarization one notices a growing deficit of labour employed in farming. To some extent this deficit is balanced out by farming mechanization as well as by immigration of agricultural population from eastern Slovenia and from Hrvatsko Zagorje. The work on hop-plantations is also by now largely mechanized. This applies particularly to hop-picking.[12] Former masses of hop-pickers have during the last decade become replaced by mechanical hoppers. Still, in the middle of August there come into the Savinja Valley from 5 to 7 thousand hop-pickers from elsewhere.

The deagrarization was closely bound up with the process of passing privately owned land into the social sector. In 1956 the surfaces of the social sector covered only 9.7% of the Savinja Valley, but in 1972 already 16.97% or 5.925 hectares. The most fertile fields in the western part of the Celje basin were formerly subdivided among numerous owners; by now very large field complexes have been formed out of the former smaller fields, and most of them are planted with hop. Land-lots owned by private farmers still exist on the southern fringe, whereas land on the hilly or mountainous fringes have not undergone any major ownership changes.

The new technology of the production of hops has modified the physiognomy of the entire area. Hop-plantations with wooden hop-poles represent today a rarity indeed; they are to be found mostly outside the big field complexes in the plains. But on more than 90% of the hop-plantations in the Savinja Valley one finds today pillars made of reinforced concrete which support systems of wire hop-lines.

The hop-growing of the post-war period has not brought along essentially new requirements for a reconstruction of private farmsteads. But one cannot fail to notice large hop-growers' houses (mostly of the cooperative type), providing facilities for drying hops, for storing, selling, etc. These houses were built from 1956 to 1960 and today represent also the centres of the economic and cultural life in the villages. Also the introduction of mechanical hoppers made it necessary to put up new buildings, either on the fringes of the field complexes or even in the middle of them.

Contemporary technology of the production of hops required a re-organization of hop-plantations. The cultivation of fields has been strongly mechanized not only in the socially-owned sector but also on private farms. During the last ten years the number of horses used for the work

[12] L. Cetina, *Obiranje hmelja s strojem* (Hop harvesting), Celjski zbornik, Celje 1962, p. 117—130; A. Baš, *Obiranje hmelja na kmečwih posestvih dolini* (Hop harvesting in peasant farms of the valley), Slovenski etnograf XXIII—XXIV, Ljubljana 1972, p. 71—98.

in the fields has decreased from 70 to 80%. Their place has been taken up by tractors, the local farms having by now as many as 650 of them—which means 1 tractor per 18 hectares of farming surfaces.

Deagrarization and the mechanization of farming have in recent years brought about also other kinds of changes. Polycultural economy is decreasing in favour of more specialized forms. Buckwheat, millet, and barley are almost no longer found in the local fields. Wheat and maize, in addition to potatoes and fodder plants are the main field products. Recently the interest in vineyards has been revived, particularly on the northern fringe. Although the production of wine does not represent a commercial element, the role of vine-growing has been strengthened. New is also the role of the recently built weekend-cottages, which affect the transformation process of the Savinja area. Also the formerly commonly-owned land, overgrown with shrubbery, along the Savinja has in the recent period of industrialization and modernization acquired a wholly new importance. This land has become now a much sought-after site for building weekend--cottages along the clear Savinja.[13]

Big physiognomic changes are being undergone by the hop-growing villages. On their fringes or on the sites of decayed farms new houses are being put up by the local inhabitants employed in non-agrarian occupations. Particularly intensive transformation has been in process in settlements close either to the developing urban centres or to the more important traffic routes. Already in the inter-war period some of the better--standing farmers have improved their houses by rebuilding them into houses of two stories. But the post-war industrialization, deagrarization, and urbanization have modified the physiognomy also of non-farming settlements. Recently here a considerable number of block of flats and similar residential buildings has been built—and these represent a new element in the landscape. Often we come across the claim that the development of the mechanization of private farming so far was too slow. But here we tend to forget that for a long time the surplus value from private farming was utilized for building new houses put up by farmers' children employed outside farming.

Numerous farmstead buildings erected in the inter-war period are functionally no longer adequate for present-day requirements. Because private hop-growing is on the decline, private drying facilities are no longer very much needed ; stables, on the other hand, are becoming too small in view of the increased livestock breeding. Recently, a considerable number of silos has been built. Double wooden frameworks for drying grass, etc., formerly a typical element in the Slovene landscape, are losing the significance they had at the time when used for drying cereals and clo-

[13] A. Sore, *Počitniške hiše in počitniška naselja v porečju Savinje* (Week-end houses and week-end population in the Savinja basin), Celjski zbornik, Celje 1972, p. 451—473.

ver. In a word, most of the existing farmstead buildings owned by the hop--growing farms exhibit the agricultural orientation of the past. As such, they represent a significant architectonic monument of the hop-growing area from the inter-war period. Because private hop-growing is on the way out and because of the deagrarization numerous farmstead buildings have been converted into flats, store-rooms, and the like.

CONCLUSION

The development of hop-growing so far has imparted to the Savinja Valley a specific physiognomy. This physiognomy is an expression of the material position and general agricultural orientation of the people living here. The post-war social and economic changes have led people to rely less on their land. Land has become by now only a means for acquiring a higher standard of living. The more favourable working, social, economic, and living conditions of people employed outside agriculture are accelerating deagrarization and are creating farms with only old people with no successors working on land. This reduces the economic power of farms and also determines their all too slow response to new trends and relations in agrarian produc .on. Private farms in Savinja Valley are today faced with a cardinal dilemma : as a rule the most vital are the farms in the mountains and the farmsteads of the fringe of the Celje basin. Farming in the lower settlements as well around the industrial settlements is for the most part deagrarized and mechanized—but still with no bigger perspectives for the future. This means a favourable opportunity for socially-run farming to acquire new agrarian surfaces and also to organize a more modern agricultural production here.

What was found to be true of the past has an instructive value for the future : the more the farming in the Savinja Valley was oriented exclusively towards production of hops, the more was the population dependent on the circumstances on the world market and on the ups and downs of world economy.

Although hop-growing required an extraordinary amount of manpower, there was all the time, throughout the eighty years under consideration, present the tendency of the local population to follow deagrarization—either by seeking non-agrarian employment at home or by emigrating to other non-rural centres. Only in the recent ten years, when some of the local non-agrarian centres had been strengthened, we find immigration to be slightly above emigration.

In the physiognomy of the hop-growing area of the Savinja Valley there has been—throughout the eighty years in question—present and noticeable the inheritance from the past. This inheritance was felt both in the systems and forms of the distribution of fields. The affirmation of the socially-run farming which has radically modified the physiognomy

of the rural landscape, industrialization, and deruralization—these are the factors determining the present-day transformation of the area under examination. With the strengthening of these factors the area is increasingly losing its specifics based so far on the particular physical and social environment. Deagrarization and deruralization of the area are wiping out the locally coloured specifics and, to all appearances, there is emerging a new, undifferentiated—in a word,—industrial physiognomy of our developed countryside.

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ABANDONMENT OF AGRICULTURAL LAND IN THE PHASE OF TRANSITION FROM AGRARIAN TO INDUSTRIAL SOCIETY. A CASE STUDY OF SLOVENIA

INTRODUCTION

The area under agricultural land has changed in history. Reasons for such a process differ, e.g. war devastations, outbreaks of epidemics, natural catastrophies, changes in natural conditions, and particularly the attractiveness of nonagricultural activities drawing off the labour force from agriculture.

Significant changes in the cultivated area have occurred in West European countries. Studies of this phenomenon point to the shortage of agricultural labour as the consequence of depopulation of upland areas as well as of changes in the socio-economic position of the agricultural population in areas with well-developed nonagricultural activities. The first phenomenon has been examined thoroughly and is generally known, e.g. in the Alps (1.8), but this is not the case with the second aspect which is also very interesting. Authors studying the problem approach it from various angles. For social geographers the study of reasons for the abandoning of agricultural land means a test of the concept of social geography itself. On the other hand some geographers, deriving rather from dogmatic political position, deny the existence of noncultivated agricultural land, thinking that the socialist system itself is a priori insensitive to such a phenomenon. Only scientific point of departure allows a proper solution of the problem in practice, without political proclamations.

The various approaches to the problem caused the heterogeneity in terminology, e.g. in the French language : jachère-friche ; in Polish : ugór--odłóg ; in German : Brache-Wüste.

In the last 30 years Slovenian society has experienced a quick change from the agrarian to the industrial basis, which has caused that a former homogeneous agricultural country has broken into one with zones of population concentration and zones of population depletion.

The main characteristics of the first zone are a steady decrease of the agricultural population and a spatial mobility of the highest degree. The zone of depopulation is a zone of little economic activity due i.a. to lack of young people.

This state is reflected in the agricultural land use patterns. J. Medved (1970) discovered the following types of change in land use in Slovenia for the period 1954—1967 : spread of forests, spread of green surfaces, urbanization and intensification of land use.

RESEARCH METHODS

The goal of the investigation was to discover reasons which had led to the abandonment of agricultural land and regularities in the patterns of agricultural land left uncultivated in various regional structures.

The areas that showed complete abandonment of cultivation were treated as abandoned. For at least one year and at most for the time when

Table 1. Sample cadastrian communes. Short characteristics

cadastrian communes	a	b	c
Radovljica	the alpine landscape region	not subject to population decline	spread of green surfaces
Voklo	the region of the subalpine uplands	not subject to population decline	intensive spread of green sufraces
Podvrh	the region of the subalpine uplands	of absolute population decline	intensive spread of forests
Prosenjakovci	the subpannonian region	subject to absolute population decline	intensive spread of green sufraces
Sebeborci	the subpannonian region	subject to relative population decline	intensive spread of green surfaces
Ždinja vas	the subpannonian-subdinaric region	not subject to population decline	intensive spread of green surfaces
Kozjane	the submediterranean-subalpine region	subject to absolute population decline	spread of forests
Krajna vas	the true submediterranean region	subject to absolute population decline	intensive spread of forests
Ankaran	the true submediterranean region	not subject to population decline	intensification

[a] characterized by landscape types and ecological areas
[b] characterized according to socio-geographic characteristics
[c] characterized by the types of change in land use

their former way of land use was still recognizable they had not reached the stage of shrubbery or wood.

The study was based upon land-use mapping in nine cadastrian communes. Nine sample communes were chosen on the basis of three typologies: types of landscape (S. Ilešič, 1972), socio-geographic characteristics (M. Klemenčič, 1972) and types of change in land use (J. Medved, 1970), so that they represent different natural and socio-economic environments in Slovenia.

At the begining individual parcels of land were thoroughly examined and subsequently only the abandoned ones were studied in detail. As many parameters as possible of a natural and socio-economic kind were collected for each abandoned parcel. Cumulated values of each parameter were substitued with corresponding number of points.

In the second phase "critical values" for individual parameters were established following completed empirical studies (M. Klemenčič, 1974). "Critical values" mean values of individual parameters for which—taken as ideal—agricultural production would no more be economical and land would no longer be cultivated.

Table 2. Two examples of the substitution of parameters by points

a) Size of land parcels

size of land parcels (in m²)	value in points	"critical value" for a parcel of land	
leass than 500	1	for arable land	1500 m²
500—1000	2	vineyard	1000 m²
1000—1500	3	orchard	1500 m²
1500—2000	4	meadow	5000 m²
2000—3000	5		
3000—5000	6		
5000—10000	7		
more than 10000	8		

b) Distance of a land parcel from fram

distance (in meters)	value in points	"critical value"
more than 2000	1	1500 metres
1500—2000	2	
1000—1500	3	
500—1000	4	
less than 500	5	

"Critical values" were established for the parcel area, the size of the parcel, the owner, for the socio-economic structure of his family and for natural conditions. The analysis of abandoned parcels in this respect makes it possible to identify causes for the appearance of abandoned land.

SOME CHARACTERISTICS OF ABANDONED AGRICULTURAL LAND

There are three main kinds of influences causing formation of abandoned agricultural land :

1. changes in relations between human beings and the natural environment because of changes in the socio-economic structure of society ;
2. an agrarian structure unsuitable for modern agricultural production ;
3. unsatisfactory organization of agricultural production (agrarian policy, organization of marketing, fixed prices for agricultural products, etc.).

All the three factors point to the socio-economic nature for agricultural land being abandoned. By analysing the process of its formation we can distinguish social, economic and technological types of abandoned agricultural land (recent idle land).

Abandoned areas occur on all kinds of agricultural land (arable land, vineyards, orchards, meadows, pastures) and in various stages of abandonment.

ABANDONMENT OF AGRICULTURAL LAND AS AN INDICATOR OF SOCIO-ECONOMIC CHANGES IN THE SR OF SLOVENIA

A clear coincidence of types of the regional socio-economic structure with the degree of abandonment of agricultural land was established and the following five types of areas differentiated :

a) situated in the immediate vicinity of settlements characterized by quick development of nonagricultural activities ;
b) areas with a considerable number of daily commuters ;
c) completely rural areas recently included within the gravitation zone of daily commuting to industrial centres ;
d) areas characterized by socio-economic stability ;
e) areas isolated due to lack of communication.

Table 3. Increase of abandoned agricultural land in the sample cadastrian communes, 1974

Cadastrian communes	percentage of abandoned land by kinds of agricultural land			
	arable land	vineyards	meadows	pastures
Radovljica	8.8	—	62.0	27.5
Podvrh	0	—	0	43.0
Prosenjakovci	3.8	3.4	2.6	2.1
Sebeborci	2.0	5.0	0.3	—
Ždinja vas	●	6.7	●	●
Kozjane	0	0	0	0
Voklo	0	—	0	0
Krajna vas	9.2	0	3.0	58.0
Ankaran	16.6	31.6	12.8	17.0

0 = no abandoned surfoces
– = a definite kind of agriculuural land does not exist
● = no data

a) A significantly lesser importance of agriculture in the areas neighbouring with nonagricultural centres is reflected by the expansion of abandoned agricultural areas.

In 1974 in the cadastrian commune of Radovljica 8.8 per cent of arable land, 62 per cent of meadows and 27.5 per cent of pastures were abandoned : a half because of changes in the socio-economic position of land owners, one-third because of changed functions (areas left for private building) and an insignificant part only because of unsuitable natural conditions. The trend towards the abandoning of arable land began in 1966. In the period between 1968 and 1974 a half of the arable land was converted into grassland following the extensification of agriculture on farms with part-time farming families.

Owing to mechanization in part-time farms—by far the predominant form of farming in this area—meadows are still mowed by mowing--machines. The essential reasons for abandoning the meadows are unsuitable natural conditions which make the use of agricultural machinery impossible (a half of areas) and only one-fifth because of changes in the social position of the land owner.

b) Three types of changes were found in the areas with stagnant population and a longer influence of deagrarization (Podvrh, Sebeborci, Krajna vas, Ždinja vas):

— a relatively moderate degree of abandoning the agricultural land ;
— an intensinve expansion of green surfaces caused, in most cases, by a change in the socio-economic position of the land owner ;
— a quick abandonment of agricultural land of "limited productivity", e.g. pastures on karst terrains, mountain pastures and vineyards in areas with natural conditions unfavourable.

Specific processes characterized by a moderate extension of abandoned surfaces following socio-economic changes in the rural families, result from progressing adaptation of the traditional agricultural structures to the conditions of modern agricultural production.

The reasons of abandonment are various : in the NE part of Slovenia, characterized by extremely small farms and dispersed parcels of land, the greatest part of abandoned arable land can be found on the smallest and the most distants lots (Sebeborci). A similar situation occurs in karst regions, where the reasons for small lots of arable land was not unconvenient ownership structure of estates but natural conditions : in the commune of Krajna vas 80 per cent of abandoned arable land consisted of lots smaller than 10 ares.

The highest number of fields in mountainous regions were converted into meadows in the last fifteen years ; totally abandoned fields are rare because former arable fields are favourable for grass production (Podvrh).

Two kinds of vineyards exist in Slovenia :

— vineyards as the insignificant supplement to traditional agriculture

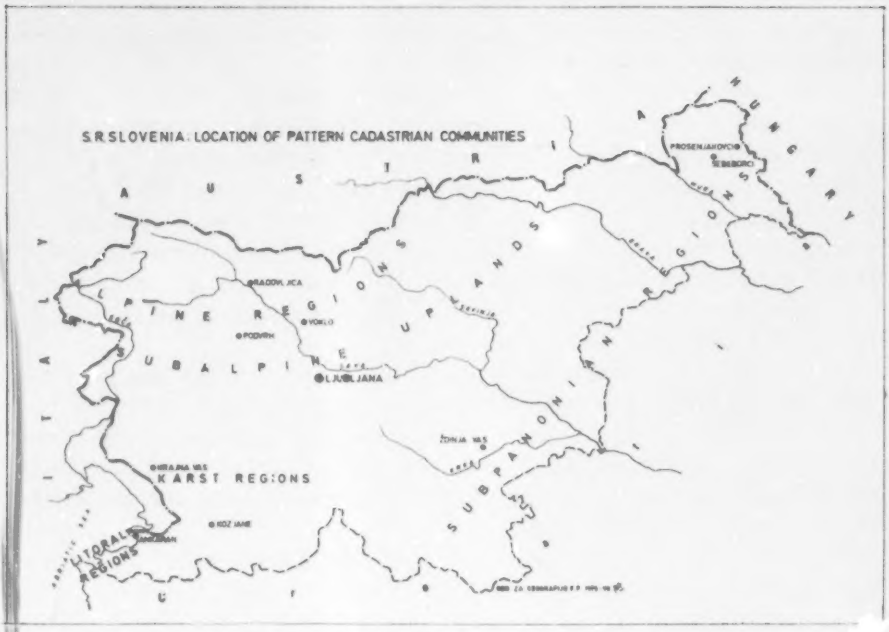

Fig. 1. S.R. Slovenia ; location of cadastrian communities.

where there are no natural conditions for growing grapes of good quality, and

— vineyards as the essential part of rural economy.

From 3 to 5 per cent of vineyards in the areas with the first type of vineyards are abandoned following transition from subsistence economy to modern economy, especially because parcels of land are very dispersed and small ; many of them belonging to non-local owners (Sebeborci).

In the areas with the second type of vineyards, a significant factor (accounting for 60 per cent) of abandoned land, was a changed socio-economic structure of the rural families. Even more important was a great distance between abandoned lots and the farmstead ; 70 per cent of abandoned vineyards in the commune of Ždinja vas were property of non-local owners. Unfavorable natural conditions influence the abandonment of vineyards in an insignificant degree.

c) Areas that for a long time have been isolated from the influence of industrialization, experience—with a sudden possibility of employment in nonagricultural activities—quick and profound changes in land use. Economic and social advantages of employment in nonagricultural activities are so great that the existing form of agriculture becomes economically insufficient and therefore the process of abandonment of agricultural land intensifies. This process is characteristic especially of the eastern part of

Slovenia, a region with traditionally small farms and a great number of small lots. 90 per cent of abandoned arable lots in the cadastrian commune of Prosenjakovci are under 10 ares. Only for 10 per cent of fields we can suppose that unsuitable natural conditions have caused their abandonment. Similar conditions apply to vineyards under 10 ares, with a length--width ratio up to 1 : 60.

d) Socio-economic stable areas (predominantly rural areas with a moderate increase of population, a modern way of agricultural production owing to an appropriate agrarian structure and specialization of agricultural production) reveal their stability by lack of abandoned surfaces. This type of areas can be found on a small part on the plain lying in the vicinity of Kranj, the lower part of the Savinja valley and some other isolated locations.

e) Areas isolated from the influence of industry, with no possibilities for daily commuting, point at a complete abandonment of cultivation, at first only on the most distant parcels of land. In the last but one phase only small surfaces in the vicinity of settlements remain still cultivated. In many places this process develops so rapidly that it is very difficult to follow it. For example, in the cadastrian commune of Kozjane, in Brkini, field work carried out in 1973 proved that of arable land, marked in official statistics for that year as under cultivation, only 14 per cent was in fact cultivated.

CONCLUSIONS

The phenomenon of abandonment of agricultural land is the result of two processes :

1) socio-economic transformation of traditional agrarian society, which with an unchanged agrarian structure cannot build, in quite different socio-economic conditions, an economic basis for agricultural land use, and 2) a new evaluation of agricultural land. With the use of modern agricultural machinery and transition from maximization to optimalization of agricultural land use quite large areas are eliminated from agricultural production.

For new idle land is an expression of sudden disequilibrium in the relations between the socio-economic status of the land owner and the natural possibilities for agricultural development. On the other hand, the expansion of green surfaces represents a quantitative aspect of the widest changes of socio-economic structure of Slovenian society and therefore both of them should be examined together.

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THE DISTRIBUTION OF RURAL POPULATION. STRUCTURAL CHANGES AND THE IMPACT OF SUCH DISTRIBUTION ON THE GENERAL DEVELOPMENT OF KOSOVO

Spatial distribution of population is an important indicator of socio-economic development of an area. In part, spatial distribution denotes the degree of social and economic development at the progressive stages of settlement. If a certain area develops agriculturally, that is, by people with domestic animals and with self-subsistence agricultural production, then, in this area, small, closed, and disperse settlements are formed, as is the case in the province of Kosovo. The network of settlements which exists in Kosovo was developed during the agricultural stage under conditions of self-subsistence, while the undeveloped network of roads were formed during the stages of high isolation and human insecurity.

According to statistics, on a total of 10,887 square kilometres, Kosovo has 1,435 settlements, or 13.2 settlements per 100 square kilometres, and we are able to conclude that in Kosovo, small settlements do dominate the area, as can be seen in the following table of data :

	up to 199 inhabitants	200—499 inhabitants	500—999 inhabitants	1000—4999 inhabitants	more than 5000 inh.
no. of settlements :	216	475	472	263	11
% :	15.0%	33.0%	32.8%	18.3%	0.9%

From this data, we can see that two size groups of villages are clearly prevailing ; one group from 200 to 499 inhabitants (33 per cent), and the other from 500 to 999 inhabitants (32.8 per cent). The group of settlements with 1000 to 4999 inhabitants is slightly larger than the group with less than 199 inhabitants : 18.3 per cent to 15 per cent. The group with more than 5000 inhabitants is the least represented ; out of them only eleven are large settlements (9 per cent) which comprise seven urban communities of more than 20,000 inhabitants, and four small urban settlements of less than 10,000 inhabitants.

Thus, the average settlement in Kosovo in 1971 had 867.4 inhabitants, while the average settlement which was not the communal centre had 670.6 inhabitants. The index of concentration for the population in Kosovo in 1971 was 11.25 (out of a scale of 0 to 100), which is very small and which shows the considerable dispersion of population.

To carry this point even further, we may examine data which show the average distance to the centre of the commune.[1] In Kosovo, the average distance is 3.14 km ; the smallest distance being the community of Vučitrn—2.56 km, and the largest being the community of Dragaš, 3.92 km.[2] Again, we are able to note the dispersion of these settlements.

If we examine the rate of urban to rural population (in seven urban settlements), we see that in 1953, the rate was 14.8 per cent to 85.2 per cent ; in 1961, 17.3 per cent to 82.7 per cent ; and in 1971, 21.6 per cent to 78.4 per cent ;[3] from which we are able to conclude that more than three-quarters of the population of Kosovo lives in rural areas. In 1971, 19.6 per cent of the population lived in the actual centres of the communes, while 80.5 per cent of the population lived outside the communal centres. Only with the larger urban settlements of Kosovo was the portion of population living in the communal centres in relation to the population of the commune itself, higher : 46.4 per cent in Peć and Mitrovica, 45.5 per cent in Priština, 42.6 per cent in Prizren, 41,5 per cent in Djakovica, 31.1 per cent in Gnjilane, and 26.3 per cent in Uroševac. The highest portion of population living outside the communal centre can be seen in the communes of Dragaš, 97.4 per cent ; the communes of Glogovac, Klina, and Srbica—95.5 per cent each, and Vitina and Leposavić—93.4 per cent each. In eleven or 50 per cent of the communes, the rural population is over 90 per cent and in fifteen communes—over 75 per cent.

Communes with lower urban development have the greatest portion of rural population. In communes where there are no larger urban centres, rural settlements are again larger : Dečani, Vitina, Suha Reka, Gnjilane, Uroševac and Glogovac have all between 720 to 885 inhabitants. In river valleys, in less developed communes and in areas with good soils, the rural settlements are larger and spaced closely to one another. In mountainous and hilly areas, on poor soils, but also in the communes with attractive centres of migration, the rural settlements are smaller and spaced farther apart.

[1] L. Sretenović, *Metodologija sastavljanja i interpretacije kompleksne izohrone-saobračajno karte grada* (Methodology of compiling and the interpretation of isochrone trafic maps of towns), Zbornik radova 5, 1964, Belgrade.

[2] The average distance of the settlement is taken by the formula : $d = 2\sqrt{\frac{P}{n\pi}}$; P = the surface of the commune ; n = the number of settlements.

[3] M. Gaši, A. Puška, 1974, *Proces porasta i koncentracije stanovništva Kosova* (The process of the increase and the concentration of the inhabitants of Kosovo), Zbornik IX Kongresa geografa Jugoslavije, Sarajevo, p. 257.

THE STRUCTURAL CHANGES OF POPULATION

The important indices of the structural changes of population are: the decrease of the percentage of agricultural population, the increase of the rate of actively employed, the increase of the portion of population employed in secondary and tertiary areas, the increase of urban population, of literacy, and the increase of national income per capita.

Every stage of socio-economic development has its own focus of population concentration. In the agrarian stage, the development had been focussed in the agricultural areas and settlements; in the industrial and functional stages, there were the areas endowed with raw materials and urban settlements, in which objects, means of production, people and capital had concentrated. In those countries and regions where the processes of industrialization and urbanization had started earlier, that is, where the proportion of urban and non-agricultural to a rural and agricultural population had increased, spatial distribution of population underwent considerable transformation.

As until the end of World War II Kosovo had been mostly an agricultural area, with some 80—90 per cent of agricultural population and only four or five small urban settlements whose main occupation was handicraft. Such structure of settlement and population was justified. After 1960, some small industrial plants have been built in Kosovo what faced various inherited difficulties of an objective and subjective nature. Otherwise not much has been changed and thus Kosovo is still one of the undeveloped regions of Yugoslavia.

Changes have started, mainly in the urban centres of Priština, Mitrovica, Prizren, Peć, Djakovica, Uroševac, and Gnjilane. In comparison with other settlements, greatest economic, social, cultural, and spatial metamorphoses have occurred in Priština, in which, as the principal centre of Kosovo, numerous functions have developed, and in Mitrovica, which is the Kosovo main industrial centre. Because around both Priština and Mitrovica greater industrial objects have been constructed (Obilić, Ajvalija, Kišnica, Zvečan, and Stari Trg), their influence on more extensive areas has become more noticeable than that of other urban centres that have less centripetal and centrifugal forces.

In 1961, the number of settlements with more than 75.1 per cent of agricultural population was much greater than that of 1971, particularly in the vicinity of larger urban centres of the Kosovo basin, and also in Sirinička and Sredska župa. In general, transformation influences have been greater near larger urban centres where the population is mostly non-Albanian, and lower around smaller centres, where a greater number of inhabitants are Albanians.

In larger urban centres and in the settlement around them, greater positive changes have also taken place: the proportion of rural to urban

population has lowered, the ratio of population actively engaged in secondary and tertiary sectors has increased, the rate of unemployment—decreased, and the standard of living has been raised. Contrarily, the diffusional and effusional forces of the smaller centres have not been able to transform their own settlements, not to mention the settlements around them.

Table 1. Correlation matrix (value lower than 15 are not taken into account).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	1.00	-.99	.62		-.73	.93	-.77		-.19	.78	-.86	.77	.77	-.69	-.71	.89		.19		.53		-.48	-.19	.27	-.59	.59	.17	-.73
2		1.00	-.62		.73	-.93	.77		.20	-.78	.86	-.77	-.77	.69	.71	-.89		-.20		-.52		.48	.19	-.27	.59	-.59	-.17	.73
3			1.00	.55	.21	-.66	.27	-.41	.57	-.45	.23	.43	-.18	-.71	.45	.30	.22	.30							-.15	.15		.33
4				1.00	-.42		.43	-.42		.20	-.46		.34		-.25	.59	.32	.61	-.43	-.39	.43	.43	-.30	.25	-.25	-.26	-.29
5					1.00	-.55	.41	-.58	.21	-.44	.86	-.91	.80	-.86	-.30	.87	-.41	-.25	-.42	.84		-.78	-.58	.39	-.76	.76	.46	-.90
6						1.00	-.91	.16		.87	-.68	.60	.55	-.49	-.72	.72		.28		.40		-.39	-.21	.33	-.46	.46		.58
7							1.00	-.37		.82	-.53	.45	-.37	.36	.64	-.56		-.24		-.39		.40	.27	-.32	.41	-.40	.31	-.50
8								1.00	-.15	.18	-.31	.43	-.44	.47	-.22	-.32	.35	.39	.30	-.42	.19	.33	.32	-.26	.40	-.40	-.66	-.44
9									1.00		.20		-.25		.39	-.15	-.78	-.42	-.81	.53	.33	-.55	-.82	.62	-.33	.33		.16
10										1.00	-.52	.45	.41	-.35	-.64	.56				.37		-.36	-.24	.24	-.49	.48		.44
11											1.00	-.91	-.92	.91	.48	-.98				-.62		.61	.19		.63	-.63	-.37	-.80
12												1.00	.75	-.83	-.45	.91	-.20		-.20	.67		-.63	-.34	.24	-.61	.61	.34	.85
13													1.00	-.90	-.31	.91				.58		-.54			-.65	.66	.49	.72
14														1.00		-.91	.20		.23	-.71		.69	.28		.71	-.72	-.40	-.72
15															1.00	-.50	-.17		-.17					-.17				-.44
16																1.00				.68		-.66	-.24	.15	-.66	.67	.34	.81
17																	1.00	.72	.97	-.68	-.50	.73	.84	-.46	.37	-.38	-.24	-.27
18																		1.00	.56	-.36	-.22	.39	.47				-.24	-.15
19																			1.00	-.71	-.53	.75	.86	-.52	.41	-.42	-.21	-.28
20																				1.00	.20	-.96	-.78	.50	-.81	.82	.27	.79
21																					1.00	-.43	-.29					.16
22																						1.00	.77	-.48	.74	-.75	-.22	-.70
23																							1.00	-.69	.56	-.56	-.17	-.51
24																								1.00	-.38	.39		.43
25																									1.00	-.99	-.26	-.76
26																										1.00	.27	.76
27																											1.00	.32
28																												1.00

In ten years, the percentage of actively engaged in agriculture has decreased by 21.7 per cent : the greatest in the communes of Srbica by 47.1 per cent ; Mitrovica by 45.7 per cent ; Vučitrn by 35.3 per cent ; Podujevo by 34.2 per cent ; Prizren by 31.7 per cent ; Priština by 30.2 per cent ; and the least in Djakovica, 0.0 per cent ; Orahovac, 3.1 per cent ; Dragaš, 4.7% per cent. So the proportion of active agricultural population has decreased more in the communes of the Kosovo basin and less in the Dukadjin (Metohija) basin, the Gnjilane sub-region, and the central Drenica. However, while the percentage rate of the people actively engaged in agriculture has decreased, their absolute number increased by 3.5 per cent (from 618,381 inhabitants in 1961 to 640,629 inhabitants in 1971).

In ten years, the proportion of agricultural households has decreased from 43.7 per cent to 34.7 per cent ; the proportion of mixed households from 24.9 per cent to 16.3 per cent ; but the proportion of non-agricultural households had increased from 31.4 per cent to 49.0 per cent. It should be mentioned that during this decade, the proportion of households with eight or more members has increased from 28.6 per cent to 31.9 per cent ;

while the proportion of households with five to seven members had remained relatively the same : 36.9 per cent in 1961 and 36.6 per cent in 1971 ; the proportion of household with four members decreased from 34.6 per cent to 31.5 per cent. Because of the high birth rate, the proportion of people up to 19 years has increased from 51.3 per cent in 1961 to 52.9 per cent in 1971, while the proportion of adults has decreased from 41.4 per cent to 39.2 per cent. The proportion of a literate population has increased in the years from 58.9 per cent to 68.5 per cent ; the annual rate of gainful employment increased by 3.2 per cent, while the annual birth rate for the same period was 2.9 per cent.

The rate of gainfully employed to total population in 1961 was 8.4 per cent, while in 1971, it was only 8.6 per cent, and this is because of a lower percentage of an active population : 34.7 per cent in 1961 and 26.0 per cent in 1971. However, the proportion of the gainfully employed to the professionally active increased from 24.2 per cent in 1961 to 33.2 per cent in 1971. We are able to notice the positive tendencies in the change of the population structure from the following data :

	population active in primary sectors	in secondary sectors	in tertiary sectors
1961:	70.7%	6.8%	17.4%
1971:	52.9%	11.7%	25.3%

Despite those changes, Kosovo still helds the last place in Yugoslavia in the transformation of its socio-economic structure.

THE INFLUENCE OF THE PRESENT DISTRIBUTION OF POPULATION ON THE GENERAL DEVELOPMENT OF KOSOVO

To point out the influence of the distribution of population on general development and transformation of the country, and to confirm the hypothesis that areas with a higher share of rural population are characterized by smaller structural changes, the following coefficients of correlation between 28 variables have been used :

1. The percentage of population living in the communal centres.
2. The percentage of population living outside the communal centres.
3. The percentage of population living in settlements with more than 1000 inhabitants.
4. The average size of a settlements situated outside the communal centres.
5. The percentage of gainfully employed people to the total population.
6. The percentage of the population employed in the communal centres.
7. The percentage of the population employed outside the place of habitation.
8. The percentage of the population employed in foreign countries (in relation to the active population).
9. The percentage of an active population to the total population.

10. The percentage of employed women to the total number of employed persons.
11. The percentage of people actively engaged in the primary activities to the total active population.
12. The percentage of people actively engaged in the secondary activities to the total active population.
13. The percentage of people actively engaged in the tertiary sector to the total active population.
14. The percentage of households of actively engaged in agriculture.
15. The percentage of households of mixed agricultural and non-agricultural employment.
16. The percentage of non-agricultural households.
17. The birth-rate in 1970.
18. The death-rate in 1970.
19. The rate of natural increase in 1970.
20. The percentage of households having less than four members.
21. The percentage of households with four to seven members.
22. The percentage of households with eight or more members.
23. The percentage of the population aged 19 or less.
24. The percentage of the population aged 20—59.
25. The percentage of non-literate population.
26. The percentage of literate population.
27. The percentage of the decrease of an active agricultural population between the years of 1961—1971.
28. The income per capita in 1971.

Data for 1971.

From the correlation matrix, the highest coefficients of correlation are between variable 1, i.e. the percentage of population living in the communal centres, with some other variables, and between variable 2, i.e. the percentage of the population living outside the communal centres with some other variables.

First, we shall examine the correlation between percentage of the population living outside the communal centres. It correlates with :

11.	the percentage of the active agricultural population	0.86
7.	the percentage of the population employed outside of the place of habitation	0.77
15.	the percentage of mixed households	0.70
14.	the percentage of agricultural households	0.69
25.	the percentage of non-literate population	0.59
22.	the percentage of households with eight or more members	0.48

As we can see from these coefficients of correlation, the agricultural population, the agricultural and mixed families, daily migrants, non-literate inhabitants, and the proportion of households with eight or more members increase with the growth of the rural population, which means that the higher is the percentage rate of the agricultural population higher are other indices that characterize non-developed areas.

Added to this, by examining the negative coefficients of correlation between the variable of rural population, i.e. those living outside the communal centres, and the variables characterizing development, we are able to see that with the proportion of the population involved in agriculture

(11) increased, as well as with the increased percentage of people living outside the communal centres (2), the proportion of the so-called "positive variables" is increasing. The following variables have negative coefficients with the variables mentioned above:

6.	the percentage of the population employed in the communal centres	— 0.93
16.	the percentage of non-agricultural households	— 0.89
10.	the percentage of employed women	— 0.78
12.	the percentage of actively engaged in secondary sectors	— 0.77
13.	the percentage of actively engaged in tertiary sectors	— 0.77
5.	the percentage of the gainfully employed population	— 0.73
28.	the income per capita	— 0.73
26.	the percentage of a literate population	— 0.59
20.	the percentage of households with four members or less	— 0.52

From these coefficients of correlation, we are able to conclude that the existence of these groups hastens the development of the region. The existence of the greater concentration of a labour force, presence of raw materials, and a means of labour makes better organization of production, communication, spending, and life in general—possible.

From the correlation matrix, i.e. the coefficient of correlation, we are able to conclude that the first variable, namely the percentage of the population employed in communal centres correlates positively with all the above-mentioned variables, with which other variables correlate negatively and vice versa.

It should also be mentioned that the variable which represents the birth-rate correlates poorly with most variables. Its high correlation (−0.81), can only be seen with the percentage of the actively employed population, because communes where a greater portion of the population is employed have smaller natural increase. The positive correlation, (0.61), with the variable of the average size of a settlement besides communal centre, shows that in 60 per cent of cases, the birth-rate is higher in settlements of more than 500 inhabitants. The negative correlation (−0.42), with the variable of the proportion of employed people, shows that it does not correlate with birth-rate, although it would seem that the birth-rate should decrease with growing employment.

The variable of the percentage of households with less than four members correlates with a greater number of variables, whereas the variable of the percentage of households with eight members or more does not, because the variable of four members in a household is representative of urban settlements, whereas the variable of eight household members is representative of rural settlements. A higher percentage of larger households, i.e. of eight or more members, is characteristic of less developed communes, where those households form up to 50 per cent of the total number of households.

In communes with a higher birth-rate the percentage of larger hou-

seholds is higher, which can be seen from the high rate of correlation (0.75).

The variable of the national income per capita raises with the increase of the percentage of urban population (0.73); with the increase of the percentage of employed population, (0.90); with the increase of the percentage of employed in the secondary sector, (0.85) as well as in the tertiary sector, (0.72); with the increase of a non-agricultural population, (0.81); with the increase of the percentage of families with four members or less, (0.79); and with the increase of a literate population, (0.76). The variable of the national income per capita decreases with the increase of rural population, (−0.73); with the increase of an active agricultural population, (−0.80); with the increase of households with eight members or more, (−0.70); with the increase of the percentage of agricultural households, (−0.72); and with a large percentage of non-literate inhabitants, (−0.76).

It is my opinion that the dispersal of population in smaller settlements lowers the possibility of development of social, economic, and cultural communication between people or social groups. In order to maintain any type of normal communication in such conditions of a dispersed population, a larger price must be paid in the consumption of energy, which in today's standards is still very expensive. In order that labour as well as life style is better organized, it becomes necessary to re-distribute the population, so that the number of small settlements is decreased. Communication must also be organized in such a way that goods, people, and ideas are able to move unobstructed, losing neither time nor energy[4] in the distance between the place of habitation and the place of work, education, or any other place where every-day activities are carried out. In order to accomplish the re-organization, the people must either be localized closer to the objects that require their daily attention, or the time spent or travelling to these objects must be shortened. It is a well known fact that by making a settlement larger, its own functions broaden; therefore, we are able to conclude that the population dispersed on small settlements is not able to take advantage of a greater number of objects by which every-day activities can be carried out. The dispersal of population makes contact with a larger number of objects impossible, which in turn reflects negatively on the standard of living of the individual, as well as of the entire population. It becomes evident that the natural rights of an individual to make use of advantages provided by nature as well as by civilization are limited, which again reflects negatively on both the individual and on the population itself.

[4] A. Puška, Z. Bajrami, 1974, *Tipizimi i komunave sipas koncentrimit të popullsisë në Kosovë dhe rëndesia ekonomiko shoqërore*, (The standard of the communes by the concentration of the population in Kosovo and of economic and social importance), Priština, p. 565.

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TRANSFORMATION OF RURAL AREAS IN THE POLOG BASIN, NORTH-WESTERN MACEDONIA

The Basin of Polog occupies the north-western part of Macedonia and extends along the upper course of the Vardar river. It is about 50 km long, in the direction south-west-north-east, and about 10 km wide in its central part. It is a natural and economic unit, surrounded on all its sides by mountains. Two urban, central places : Tetovo and Gostivar, and 131 rural settlements of all possible sizes, from the biggest to the smallest in Macedonia, are situated in this territory. Outside the basin but still within the boundaries of the commune of Gostivar, there are 36 rural settlements, situated around Lake Mavrovo and in the Upper Radika Valley. In the commune of Tetovo, but outside of the basin of Polog, 12 rural settlements are situated in the valley of the Fuška Reka.

PROCESSES OF INDUSTRIALIZATION IN POLOG AS A FACTOR OF ITS TRANSFORMATION

Up to World War II the development of industry in the region of Polog was quite insignificant. In 1940, out of 111 industrial enterprises on the whole area of Macedonia, only six were located there, four in Tetovo and 2 in Gostivar communes.[1] This was a small processing industry of local character, employing very few persons, chiefly from the urban population. As labour supplies from the villages of the Polog Basin were not utilized locally, a part of the active rural population had to look for the source of their livelihood elsewhere.

This was the period when first movements of the labour force took place in Polog ; first of all from the countryside to the local urban centres.

It was an immigration of young people from the countryside to get an employment in many private commercial stores and craftsmen's workshops which were at that time characteristic of almost all urban agglomerations in Macedonia and, consequently of Tetovo and Gostivar. These were the well-known apprentices, called *čiraci*, who, qualifying for certain crafts, became also qualified for work in industrial factories.

[1] *Industrija vo N. R. Makedonija* (Industry in the People's Republic of Macedonia), Ekonomski Institut, Skopje, 1961, p. 57.

The poorly developed industry could not provide employment to all of them and consequently they were forced to leave the region and to emigrate to more developed regions of Yugoslavia, particularly to Serbia, in which industry was developing considerably faster at that time. Of particular attraction was Belgrade, where they could get employment, though jobs were rather limited. However, most of them started their own shops, for they were skilled bakers, confectioners, tailors, *abadžije* (tailors who make national costumes) practising also different other crafts and trades. Thus, the second form of labour movement was born called "*pečalbarstvo*" (emigration in search of work) which in fact was nothing else but a continuation of the earlier movements from the countryside to Tetovo or to Gostivar. Migration to these towns, for at least a part of the population of the numerous villages of Polog, was only a stage in their further movements outside in search of means of living for themselves and their families, which either remained in the countryside or went with them to live in towns. In the first case they visited their families once or twice a year, therefore this kind of migration was considered to be a seasonal movement. When they managed, after several years of hard work, to acquire a secure position (a shop or a permanent job and everything else after that), they always brought their whole family to town. In addition to these movements, migration abroad developed also, mainly to some neighbouring countries, such as Rumania, Bulgaria and Turkey. Many of these migrant workers went also overseas, particularly to the United States of America.

After World War II, the migratory movements have reached quite considerable proportions, incomparably bigger than before the war. The reasons for such intensive migrations are to be sought chiefly in the changes of the social structure and of the political system, and also in the rapid economic development of the country, especially in its powerful industrialization. In Macedonia also the policy of rapid industrialization has led to a fast development of industry and mining, measured not only by the number of enterprises and factories, but also by an increase in the value of fixed assets, the number of employed persons, and even more so by an increase in the volume of production. Already after the ten years of industrialization (1957) there were in Macedonia 299 industrial factories, i.e. twice and a half more than in 1940. In the region of Polog the number of such enterprises grew from 6 in 1940 to 19 in 1957. Out of this number, 13 industrial enterprises were located in Tetovo, 5 in Gostivar and one in Jegunovac, where in 1957 a big industrial factory, "Jugohrom", began production.[2] Its construction was of an enormous importance, for it transfor-

[2] N. Uzunov, *Industrikite centri i reoni vo SR Makedonija* (Industrial centres and regions in the People's Republic of Macedonia), Ekonomski Institut na univerzitetot vo Skopje, Skopje 1970, p. 20.

med the socio-economic structure of Polog to a great extent and drew some surplus labour from the densely populated rural area of Lower Polog. This process of industrialization has also been continued after 1957. Between 1957 and 1966 the total number of industrial enterprises in Macedonia grew from 299 to 513, i.e. 1.7 time. In Polog their number increased from 19 to 36.[3] After 1966 the number of industrial enterprises has grown still more rapidly and some of them were established in the areas where there were no such objects in the past. In result in 1966, 11,640 people were gainfully employed in the commune of Tetovo out of which 51,4 per cent in industry; in the commune of Gostivar the respective figures were 7,733 and 28.2 per cent. Up to 1971 (sept. 30) the number of gainfully employed rose in the commune of Tetovo to 13,318 people with 54 per cent in industry, while in the commune of Gostivar—to 7,643 with only 32 per cent in industry.[4]

DEMOGRAPHIC CHANGES AND RELATIONS IN POLOG

Both components of the natural increase, birth-rate and mortality, of the rural population of Polog were very high in 1953 and 1961. The birth-rate amounted to 41.6 and 40.6 pro mille, respectively. In 1971, the birth-rate for both communes of Polog was lower and amounted to 31.6 pro mille. Such rates are, as it is known, characteristic of underdeveloped countries. Only in Kosovo the rural birth-rate was higher in 1961 than in Macedonia by about 10 pro mille. In spite of considerable oscillations in respective years the birth-rate in Polog did not change much in the period between 1951 and 1968, from which fact we may infer that it is impossible to expect there some radical positive changes within a short period.[5] At the same time an opposite tendency took place in other rural areas of Macedonia—namely, a gradual reduction of natality.

The mortality rate was also high like that in Kosovo. In 1953, it amounted to 18 pro mille, in 1961 to 15 pro mille and in 1971 it was much lower, i.e. 9.3 pro mille. In relation to other rural areas of Macedonia, the rates were higher by 3—4 pro mille. This fact puts Polog also within the category of the underdeveloped areas of our country. However, the important fact is that the mortality rate in rural Polog decreased much faster than did the birth-rate. Whereas in 1961 the latter was by 2 per cent lower in comparison with 1953, the former was reduced in the same period

[3] N. Uzunov ..., op. cit., p. 20.

[4] *Statistički godišnjak na S. R. Makedonija* (Statistiscal Yearbook of the People's Republic of Macedonija), Skopje 1972, p. 282.

[5] I. Iosifovski, P. Markovič, *Demografskiot razvoj i proizvodetvenite karakteristiki na zemjodelskite stopanstva na selo vo Polog* (Demographic development and production characteristics of agriculture in the Polog village), Institut za sociološki i političko-pravni istražuvanja, vol. 4, Skopje 1973, p. 16—19.

by 16 per cent. The death rates in the period from 1951 to 1968 manifest a failing tendency.

Infant mortality, one of the most important indices of social and economic development, shows exceptionally high rate in Polog, even higher than in Kosovo. On the average 159 out of 1000 children born alive died each year in Polog in the period of 1951 to 1968, with oscillations, from 200 (1951) to 130 (1966) deceased infants. That means that in 1951 one out of five infants died before its first birthday and when we compare infant mortality with the total mortality of the Polog population for the above period, we shall see that almost every second dead person was an infant. The average figure for 18 years, namely 42 deceased infants per 100 deceased persons in Polog compared with 6 per cent in Slovenia and 17 per cent for the whole of Yugoslavia points again to the underdevelopment of the Polog area.[6]

As in the period of 1951 to 1968 the birth-rate was stabilized at a very high level and mortality decreased, the natural increase was growing up and as at the same time emigration possibilities in that part of Macedonia were limited, a constant increase of population resulted.[7]

In 1953 the natural increase in the villages of Polog amounted to 23.9 pro mille ; in other rural areas of Macedonia and in Macedonia, in general, as well as in Kosovo, it was somewhat higher. In 1961, it rose in Polog to 26 pro mille and in Kosovo to 29 pro mille.[8] In the recent period, however, a reduction of the natural increase can be observed. In 1971 it amounted to 21.7 pro mille in the commune of Tetovo and to 22.9 pro mille in the commune of Gostivar.[9] Those figures are comparable to the natural increase that characterizes many underdeveloped countries in the world, such as : Haiti (24.2 pro mille), Bolivia (24.9 pro mille), Burma (22.9 pro mille), Sri Lanka (22.3 pro mille), Chad (22.7 pro mille), Mali (23.2 pro mille) etc.[10]

From the above we may draw the conclusion that in the post-war period Polog, similarly to Kosovo, has reached such a rate of the natural increase that could hardly be absorbed even by far more developed territories. This phenomenon, however, can be explained by the fact that about three-fourth of the population of the two communes in 1971 (76.2 per cent in the commune of Gostivar and 71.3 per cent in the commune of Tetovo) were composed of Moslem: Albanian or Turkish population, for which a high natural increase is a characteristic feature. The intensity of migratory movements in Polog has become lesser in the post-war

[6] I. Iosifovski, P. Markovič..., op. cit., p. 24—27.
[7] I. Iosifovski, P. Markovič..., op. cit., p. 20—22.
[8] I. Iosifovski, P. Markovič..., op. cit., p. 28.
[9] Statisčki godišnjak... 1972, op. cit., p. 279 and p. 281.
[10] Statistical Yearbook of the United Nations 1971, p. 89—90.

period, and is now characterized by a negative balance i.e. the emigration is greater than the immigration. In the period up to 1961 this balance was even more negative (14.1 per cent in the commune of Gostivar and 5.9 per cent in the commune of Tetovo), chiefly due to the intensive emigration of the Turkish population from Polog and from Macedonia in general. In the next period up to 1971 the emigration to foreign countries continued, but with a lower intensity in relation to the preceding period (5.6 per cent in the commune of Gostivar and in that of Tetovo 1.2 per cent). Among the emigrants the number of Turks, who formed a majority in the previous period, diminished, while the number of Macedonians and also of Albanians emigrating to West European countries and overseas has increased. From the economic point of view such movements are important for the rural areas of Polog, but they are also unfavourable, for they change the demographic structure.

According to 1971 data, the commune of Tetovo took the second place immediately after the commune of Bitola, in Macedonia as a whole as far as the number of migrants is concerned. Their number amounted to 5,178 (and in the commune of Gostivar to 3,063), out of which 62,4 per cent and 58.9 per cent respectively were rural inhabitants (9, annex 33).

As regards the period of immigration 40 per cent of inhabitants settled in Polog before Word War II, a percentage which was bigger than elsewhere in Macedonia, and 17 per cent after the war. The postwar drive was due to inner migrations, connected mainly with intermarriages. This is another evidence of the stagnation in this respect resulting from the very poor industrialization of this area before the war, and immediately after the liberation. Only in the recent period the moderate-scale migration to Polog from other underdeveloped parts of Macedonia could be observed. A good example is provided by the village of Brvenica (at 5 km distance from Tetovo). Already before the war, some people from Poreč, another underdeveloped region lying in the Treska Valley south-east of Polog, settled there. Their number greatly increased in the last year when a new wave of immigrants from Poreč has arrived to this prosperous village of Polog and built there new houses. In the same way about 30 per cent of all the new-settlers in Polog have arrived from villages of other Macedonian communes. In this respect, similarly as the Ohrid area, Polog is a part of Macedonia where such movements are best expressed.[11] On the other hand, it is characterized by the highest rate, i.e. 62 per cent of all migratory movements in 1961,[12] of the people who moved only within the boundaries of their communes. The rate is only slightly less than that in

[11] I. Iosifovski, *Nekoi aspekt na demografskiot razvitak na selskoto naselenie vo SR Makedonija* (Some demographic aspects of the development of rural population in the People's Republic of Macedonia), Institut za sociološki i političkopravni istražuvanja, vol. 1, Skopje 1970, p. 86.

[12] I. Iosifovski..., op. cit., p. 86.

the villages of the Ohrid area. These movements have become more intensive in the recent years. Consequently, some deagrarisation and depopulation zones have been formed within the boundaries of the communes of Tetovo and Gostivar.

Those movements have closely been connected with the natural conditions of the areas concerned. The Basin of Polog, as a more fertile area, has attracted first of all the inhabitants of many villages from Šar Planina, Suva Gora, Žedan, Bistra and other surrounding mountains, which have gradually become depopulated. Some of those villages have already disappeared, some others are disappearing. Thus, before 1971, five villages of the commune of Gostivar were abandoned and since that time another one has disappeared. In the commune of Tetovo, no village has yet ceased to exist, but seven out of 20, situated on the north-west periphery of the basin (on the slopes of the Šar Planina, between Gostivar and Vratnica) and out of the total of 90 villages, are near to disappearance, for their population is constantly decreasing rapidly. Twice as many such villages, lying on the territory of the commune of Gostivar, i.e. 36 (out of a total of 90 villages) are in the same situation. On the other hand, the number of inhabitants in the settlements situated on the bottom of the basin is increasing, particularly in those settlements which are situated on the contact line between the bottom and the periphery of the Šar Planina. These villages have raised the population density of Polog to the level of the most densely populated areas in Yugoslavia.

From the above the conclusion can be drawn that the villages of Polog as a whole are characterized by the most stable rural population of all Macedonia. However, within the boundaries of the communes of Polog, this population is the most mobile, which leads to the differentiation in this area of zones of depopulation and of the densely populated areas. On the other hand when compared with all Macedonian communes as regards the growth of the number of inhabitants, the two communes of Polog belong to the group of 5 communes which are characterized by an increase of population in the postward period. In this respect the commune of Tetovo is on the second place in Macedonia after Skopje. Its population increased from 83,742 inhabitants in 1948 to 131,197 in 1971, the rate of increase amounting to 156.7 per cent. This index for the commune of Gostivar was 142.6 as the population increased in the same period from 58,041 to 82,782.[15] If however only the increase of the rural population is taken into consideration, it appears that in the period of 1952 to 1971 the population of Polog increased by over 28 per cent, while in all the

[15] E. Dimitrieva, *Migracionite dviženja i problemot na vrabotenost i vrabotuvanjeto vo SR Makedonija* (Migration problems, the employment problems and employment in the People's Republica of Macedonia), Ekonomski Institut na Univerziteto "Kiril i Metodij", Skopje 1971, p. 22.

villages of Macedonia it diminished in the same period by 9 per cent. The basin of Polog thus raised in this respect to the first place in Macedonia. The same phenomenon occurred also in the growth of the population density, which in 1971, amounted to 121 inhabitants per sq km, for the commune of Tetovo, and to 61 inhab./sq. km for the commune of Gostivar. In the most numerous villages that lie on the bottom of the basin, the density of population amounted, however, to 415 inhabitants/sq km, that equalled the rate in the most densely populated areas in Europe.[14]

As urban settlements are poorly developed there, the rural population dominates and its percentage decreases slowly. In the commune of Tetovo it amounted in 1971 to 72.2 per cent of the total population, i.e. by only 68 per cent less than in 1948; in the commune of Gostivar it amounted to 71.2 per cent, i.e. by 11.2 per cent less than in 1948. The percentage of rural population for Macedonia as a whole amounted in 1971 to 51.2 per cent with variations from 19.5 per cent in the commune of Skopje to 100.0 per cent in the communes of Debar, Hisar and Brod.

The volume of illiterate population in Polog is still quite high. Whereas in 1953 almost a half of the population, or more precisely 48.9 per cent were illiterate, in 1961 this value was less by one-fourth and amounted to 37.2 per cent. These data represent the greatest values and at the same time the slowest rates of decrease in the percentage of illiterates in comparison with the total in Macedonia. As the illiteracy of the female population is concerned (53 per cent), the rate in the villages of Polog is higher than in all the rural areas of Macedonia.

The greatest changes occurred in the percentage of the graduates of the eight-year elementary schools. While in 1963 only 5 persons per 1000 had completed primary school, in 1971 their number increased to 21, i.e. 4 times. In relation to the average for Macedonia, it is still 2.5 times less and in relation, for instance, to Slovenia 7 times less.

As regards the proportion of profesionally active population, which in 1961 amounted to 34 per cent of the total population, one should remember that the villages of Polog were after all rural areas. Only, 13 per cent of the total female population was professionally active, while the figures for the other rural areas in Macedonia oscillated between 24 and 40 per cent. This can be explained by the fact that the majority of Polog population are Albanians whose religion does not approve of women's professional activity. The professional structure of population of Polog is also very specific and has not changed much. The proportion of people engaged in primary activities is very high and hardly changed between 1953 and 1961. It amounted to 78.7—77.7 per cent, respectively. The role

[14] Politika, od 10.IV.1974, p. 12.

of secondary activities is low—11.4 per cent in 1953 and 10 per cent in 1961, as is that of tertiary activities (4.4 and 5.3 per cent respectively).[15]

In the period between 1953 and 1971, the number of rural households in Polog increased from 16,417 to 19,636. That increase was particularly marked in the years from 1961 to 1971, where it averaged to 174 per year, while in 1971 it was 204. In the other rural areas of Macedonia it was considerably lower and in some of them their number decreased. This increase was particularly characteristic of the localities with Albanian population. Out of the annual average, quoted above (174 households), 80 households belonged to Albanian, 19 to Macedonian and 75 to mixed villages. As the size of rural households is concerned, the villages of Polog are characterized by a steady increase : from 6.55 in 1953 to 7.05 in 1971, while in all the other rural areas of Macedonia a lower or higher decrease was recorded. The proportion of the biggest households (with more than 11 members) increased in Polog to 12.5 per cent in 1961, while in the other rural areas of Macedonia it decreased.[16]

All those demographic indices point to the relative underdevelopment of the Polog area.

CHANGES IN THE AGRARIAN STRUCTURE AND AGRICULTURAL PRODUCTION

Individual farms dominate in the Polog basin, while the number of the state agro-industrial combines and coperatives, representing the socialized sector, constantly decreases. It dropped from 90 in 1957 to 28 in 1969 ; in 1969 only 1344 persons were employed there. On the other hand, the number of individual farms in Polog increased and 99.1 per cent of all active in agriculture were employed by them. Individual holdings in the Polog basin are very small and highly fragmented. The proportion of farms up to one ha increased from 32.0 per cent in 1960, to 44.3 per cent in 1969. Within this category, the increase of the number of holdings of up to half-a-hectare was still higher. The rapid innerease in the number of smallest holdings is a result of both inheritance subdivisions, and setting up new holdings, particularly by those who have left the mountain villages and settled on the periphery of the Polog Basin.

Contrary to the development in the other parts of Yugoslavia, the size of the smallest holdings has remained unchanged or increased, whereas most of the largest holdings have been split up and only very few increased. Consequently, instead of the concentration of land in this agricultural region of Macedonia, a stil greater subdivision of land has occurred ad thus worsened the conditions for agricultural modernization. These have been made still worse by the growing fragmentation of farms

[15] I. Iosifovski, P. Markovič..., op. cit., p. 71, p. 80—81.
[16] I. Iosifovski, P. Markovič..., op. cit., p. 84—85, p. 90.

in about 75 per cent of all individual farms. The average size of plots was less than 25 ares, in 23 per cent between 25 and 50 ares and 2 per cent only from 50 ares to 1 hectare. 51 per cent of farms had their land in more than 11 plots.[17] It is a frequent occurrence that individual farmers have several dozens of plots, as exemplified by the village of Vratnice, lying in the north-western part of Polog, where one of the farmers had his 10 ha of land in 57 plots scattered at a distance of several kilometres over the village territory.[18]

The structure of land utilization differs depending on the size of a holding. In smaller holdings the proportion of arable land and that under orchards or vineyards is greater, arable land amounts in most cases to 80—90 per cent while in the larger holdings the part of arable land decreases and that of grasslands increases, from about 10 per cent in smaller farms to over 20 per cent in the larger ones. The proportion of orchards and vineyards is somewhat greater in the smallest holdings, as they cover up to 10 per cent of agricultural land, a situation similar to that in the other regions of Macedonia. This is due to the fact that smaller farmers, having large families, try to exploit most intensively their land, which they do not have enough.[19]

The structure of agricultiral production also differs depending on the size of a holding. The production of grains, which plays the most important role in the Polog Basin, amounts to 40 per cent of gross production in farms up to one hectare, exceeding 60 per cent in the largest holdings. The part played by all other crops decreases with the size of the holding. In comparison with other areas of Yugoslavia vegetable production is of particular importance for the Polog Basin. It takes about one-third of the total value of agricultural output, while elsewhere, and in Macedonia as a whole, it does not exceed 4.5—6.5 per cent.[20] The sale of vegetables in most holdings of Polog is the main source of their incomes. Various sorts of *Capsicum peppers* predominate and they are sold in huge quantities throughout Yugoslavia. Polog is also the principal supplier of autumn peppers for the Belgrade market. Their cultivation has greatly improved the financial situation of those farms which produce and sell

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[17] I. Iosifovski, R. Kartalov, *Nekoi belezi na strukturate promeni vo zemljišniot posed na selskite domačinstva vo Polog* (Some features of structural changes in land ownership in rural settlements), Institut za sociološki i političko-pravni istraživanja, Skopje 1972, pp. 32—33, p. 54, p. 22—23.

[18] B. Jačimovič, *Iskoriščivanje zemljišta i socio geografske transformacije u Pologu na primeru sele Vratnice* (Land utilization and socio-geographical transformations in Polog as exemplified on a village of Vratnice), Zbornik Radova geografskog instituta PMF, vol. XX, Beograd 1973, p. 196.

[19] I. Iosifovski, P. Markovič..., op. cit., p. 115.

[20] P. Markovič, *Opštestveno-ekonomiskite promeni na selo vo SR Makedonija* (Socio-economic changes in villages of the People's Republic of Macedonia), Institut za sociološki i političko-pravni istraživanja, vol. 2, Skopje 1970, p. 125.

them. These, are nowadays the richest farm in Polog. They are concentrated in villages situated around Tetovo. Most of them, like Velika Rečica, Mala Rečica and Džepcište belong to Albanians. A farmer from Džepčiste, for instance, every year sells on the market of Belgrade over 30 000 kg of peppers cultivated o a single plot of 30 ares. Among other vegetables cultivated in Polog beans and, even more, onions, particularly those with big bulbs and a mild taste, should be mentioned. This crop is grown in almost all cultivated land in the villages of Donja Banica, lying in the immediate neighbourhood of Gostivar. The peasants from this village sell onions throughout the whole country. There is a growing need for suitable land for growing onions, favoured there by climatic conditions. Hence, demand for land and its price has risen to a unconceivable height. At present, a hectare of fertile soil near Tetovo or Gostivar, suitable for growig those crops, is sold at a price of 700,000 to 1,000,000 new dinars.

The cultivation of industrial crops is not particularly popular in the Polog Basin, fruit production is more common. Apples are of particular importance, especially in smaller holdings, because they usually have more man-power at their disposal. However, in a majority of the smallest farms subsistence is their main objective and therefore they produce everything what is needed by the owners and their families.[21]

The unfavourable agrarian structure of the individual farming causes that many farmers have no livestock at all. This is particularly the case of smaller holdings and with the growth of their size the number of heads of livestock increases. Cattle breeding is still widespread in Polog in spite of all problems arising from their raising and marketing. Between the two agricultural censuses of 1960 and 1969 their number increased by 4 per cent, though in Macedonia it dropped by 12 per cent on an average. The number of cattle (together with buffalo-females) per 100 agricultural holdings amounted to 241 in 1969, and in Macedonia on an average to 67. In the same period the number of sheep in Polog diminished by 12 per cent, i.e. to 845 per 100 households ; they were still less numerous in Macedonia. The reduction of the number of sheep has been a long lasting phenomenon (not only in Polog), which seems to result from unfavourable economic conditions, i.e. low prices of wool and meat products (4, p. 100). The quantity of pigs in Polog is comparatively negligible, 49 in all per 100 households, the same as in Macedonia as a whole. This phenomenon is comprehensible considering the ethnic and religious structure of its population, i.e. the dominance of Albanian Moslems.

In the structure of gross agricultural production field crops predominate and amount to 61.6 per cent of the total production, while the value of livestock products is half of that percentage (30.2). The rest is

[21] P. Markovič..., op. cit., p. 127.

divided between fruits—5.7 per cent and grapes—2.6 per cent, the latter being not so common in this part of Macedonia.

To end this part it is worthwhile to present also the structure of commercial production in Polog. On an average the sale of agricultural products represents about 30 per cent of the total value of agricultural production. Commercial production, which is the lowest in small holdings and the highest in the larger ones, varies between 25 to 35 per cent of the gross production. The degree of commercialization of individual farms in Polog is lower than the Yugoslav average, which amounts to about 40 per cent of the gross production. By branches livestock products occupy the first place in the commercial production of the Polog Basin—34 per cent, next come fruit products—23 per cent, field crops—22 per cent and grapes—10 per cent.

The structure of money incomes of individual farmers in Polog shows that their earnings from work outside the holding, i.e. from non-agricultural activities, and in the last years particularly from work in foreign countries, are more than twice the income obtained by the sale of agricultural products. The ratio is 68 to 32 per cent. This may be illustrated by the example of the village of Slatina lying at the foots of the Šar Planina. It is a village with about 170 households and in each of them there is at least one migrant worker, whether elsewhere in Yougoslavia or in West Germany. Every two or three days the postman brings to the village money-orders totalling 60,000—70,000 new dinars (3000—3500 US dollars). And how much do the workers bring with them. These proportions differ depending on the size of the holding. Thus, for instance, in a holding of a half-a-hectare, about 90 per cent of income comes from work outside the farm and only 10 per cent from the sale of agricultural products. The bigger the holding these relations change and the income from the sales of agricultural products increases while that from outside work diminishes.[22]

THE DEGREE OF URBANIZATION OF RURAL AREAS IN POLOG

Incomes drawn from both agriculture and work outside the holding are in a vast proportion invested in the villages of the Polog Basin. There is no village in Polog where several new dwelling houses were not being built. This activity is particularly well developed in the villages situated in the vicinity of the biggest urban centres or along some more important traffic arteries. In the commune of Tetovo about 300 such houses are built every year. They are all modern buildings, and without exception electrified. In some villages however, housing conditions are still bad. At least one-third of the houses in Polog are built of adobe and three-fourth have earthen floors. In the commune of Tetovo, except the three-

[22] I. Iosifovski, P. Markovič..., op. cit., p. 118, p. 119, p. 121.

villages in the Suva Gora mountains, all localities have been electrified. This is an enormous progress compared with the pre-war situation, when only 2 per cent of all Macedonian villages had electric light. Electricity brought great changes into the life and work of the rural households. Almost every house has a wireless set, and the number of television sets and other electrical devices is rapidly growing. Many localities have already water supply. In the commune of Tetovo—where before the war no village had water supply—now over 50 per cent of villages are equiped with the system. The Basin belongs also to the areas with the most developed road network in Macedonia. 71 per cent of villages in the commune of Tetovo are connected with one another by roads with asphalt surfaces. All villages situated on the bottom of the Basin are in this way connected with the principal communication lines and urban agglomerations of Macedonia. Work to connect the last few villages on the Šar Planina with Tetovo is well advanced, similarly some villages on the Suva Gora, which up to now can be reached only on horseback or on foot, this will make it possible to increase the number of local bus lines as well as to use motorcars. The bus transport to-day serves 3000 workers who commute to work in the enterprises of Tetovo, and the same number of pupils travelling to schools.

The construction of public health facilities and first aid stations, undertaken recently in some larger rural settlements has been accelerated and their connections with surrounding smaller settlements has been foreseen. Therefore, almost 80 per cent of the territory of the commune of Tetovo will be covered by a health service network. This will raise the sanitary culture of the multiple rural population of Polog, where, as already mentioned the death-rate is still very high, as the effect of the low level of material culture. The network of schools in Polog has also developed recently, and the number of pupils in the commune of Tetovo exceeds 25,000. Each fall, at the beginning of the school year, 25 to 30 new classes are opened in this commune, and thus an equivalent of a complete eight-year elementary school is provided.

Modernization of agricultural production brings about a higher degree of labour productivity. Whereas in 1970 there were in Polog but 80 tractors and 50 trailers in individual farms, in four years' time (1974) their number became several times higher, namely 401 tractors, 36 combines, 400 motor ploughs and, in addition 400 other machines. However, in some villages in Polog, particularly in those situated in the mountains, one still can see a wooden ard. Much time will still be required to change the manner of life and the entire peasant mentality of the rural areas of Polog.

However, as this survey shows, irrespective of unfavourable demographic movements and agrarian structure, very good results have been

obtained in Polog in the specialization of agricultural production and a considerable progress in urbanization. Only in the development of general culture favourable results have not been recorded. Culture lags behind in the countryside and this is also one of the reasons why young people leave the rural areas. In the commune of Tetovo there are cinemes only in two villages, Tsarce and Jegunovci, a third one is in the industrial centre "Jugohrom". However, as the number of mosques is concerned, Ponlog has no equal in Macedonia. Out of the total of about 200 mosques in Macedonia, 121 are situated in Polog, 78 of which in the commune of Tetovo and 43 in the commune of Gostivar. In the last few years the Moslem religious Community in Polog has been very active. In the period from 1960 to 1970, 19 new mosques (13 of which in the region of Lower Polog) were built there, which represented 45 per cent of all newly constructed mosques in the whole of Macedonia. In the same period 11 minarets were built and 32 mosques restored (11 in Lower Polog and 21 in Upper Polog), which amounts to 38 per cent of all restored mosques in Macedonia.[23] All of them were built by means of a "voluntary tax", paid by the villagers. In particular the already mentioned pečalbari, especially those working in West Germany, compete with one another to see which village will have a more beautiful and bigger mosque, or which will send more old men to Mecca, etc. In addition, over 5,000 children from numerous villages attend religious schools in mosques, which lack the essential elements and conditions to provide proper education. Needless to say what is the influence of that teaching on the standard of general education, on the cultural level and on views of those children,[24] or what would be gained if, instead of such a great number of mosques, even half that number of libraries and other educational institutions were built.

[23] S. Kostovski, *Religijata kaj selskoto naselenie vo dolni Polog* (Religion and rural population in Lower Polog), Institut za sociološki i političko-pravni istraživanja. Skopje 1972, p. 73—74.

[24] Politika od 10.IV.1974, p. 12.

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INTERACTIONS BETWEEN NATURAL ENVIRONMENT AND THE FORMS OF ENVIRONMENTAL MANAGEMENT IN RURAL AREAS

INTRODUCTION

Presentation of the model of interdependences between the natural environment and the "rural" forms of its use is a difficult task, especially in the case of a polyfunctional spatial structure because the style of action of such a composition depends, to a considerable degree, on spatial relations between the separate elements, both the natural and socio-economic ones. Contrarily to the relations between the environment and a definite form of its use (agriculture, forestry and the like), which despite of being complicated in its nature are, already, rather well identified, the very existence of interrelations within the framework of polyfunctional compositions still requires to be confirmed. It can be assumed that, in so far as such compositions are concerned, the number of simple relations is increasing and that new relations emerge connecting the forms of land use for which the interactions resulting from the spatial arrangement of particular forms of environmental management are, perhaps, more essential than those occuring as the expression of their functioning. An investigation into these relations not only requires a compilation of data, more numerous and more differentiated ones, but also an ability of a specific, synthetic-spatial approach to these phenomena, taken as a whole.

A significant difficulty of investigation into the relation between the natural environment and the socia-economic structure of rural areas consists in a great vagueness and divergence as concerns the definitions of the applied notions. What does a "*rural area*" mean ? What does the "*natural environment*" mean in this context ? We lack any answer for these seemingly basic questions, or rather, there are as many as papers dealing with them are. The lack of terminological definitions, generally accepted makes it always necessary to determine the basic concepts, without which the whole deduction could appear obscure or, even worse, it could be understood in a way completly opposed to author's intention. It is for this reason that a due attention will be drawn in this paper to terminological aspects.

I

There exist nowdays many definitions of the concept of "*natural environment*", beginning with those generally cognitive in character up to the purely pragmatic ones. Their multitude is understandable, because we have to do in this respect with the most complicated structure, which can be analysed and studied in many aspects and from many angles. The great majority of these definitions is substantially appropriate, however, not each out of them would be acceptable as a basis for geographical or ecological-spatial investigations.

In the context of this paper, natural environment can be assumed as a sub-system, one of the essential parts of "*rural*" variant of the system "*man-environment*", as its fully corresponds to the idea of system, the latter one being composed of :

— set of elements identified by the definite features of objects,

— set of relations between the features of these objects and,

— set of interdependences between the features and relations, on the one hand, and the surrounding, on the other.

Moreover it corresponds to the properties of the system, enumerated by D. Harvey,[1] namely :

(a) it has a definite structure, composed of elements and relations between them,

(b) it is characterized by a determined way of functioning — that is of behaviour,

(c) it constitutes a link in the hierarchical line of structures, thus, it has a surrounding and it is functioning within being itself an sur-rounding for the systems of lower rank,

(d) it is determined by the relation between the independent variables of entrance (that is—parameters) and the dependent variables of outlets (that is—features).

Thus, the sub-system of the natural environment is composed of units belonging to a lower rank. Depending on the situation these systems can be approached either as the complex spatial units (facies, geo-systems and the like), or as the homogeneous environmental elements (waters, soils, vegetation, landforms, etc.), or—finally—in a more pragmatic way——as the specific natural resources with definite social and economic value.

It is the homogeneous sub-system of endogenic elements (mineral substratum, soil, partially—vegetation and waters) and exogenic elements (radiation, air masses, both rain and flowing down waters, and the like). Such a structure, the so-called facies, is the environmental unit, the lowest structurally, within which the elementary features are integrating,

[1] D. Harvey, *Explanation in Geography*. London, 1969.

giving in effect a new quality. The set of facies, similar in so far as the style of functioning is concerned, and mutually dependent, composes the geo-catena which, in turn, compose geosystems. The groups of geo-systems which are characterized by a similar way of impact of the exogenic elements create the so-called physiocoenosis which, in turn, are integrating into units of higher rank, and so on. The problem of nomenclature concerning these spatial units is not of an essential importance. It is not especially important whether we shall refer to them as to landscape areas or in another way.

But important is that it is only through the showing of connections on a higher level that the character of the units of a lower rank can be determined. Owing to this, a double research procedure is possible : "*from below*"—through a search of connections on higher level on the basis of information included in the structures under investigation, and—"from above"—that is, by logical-deductive determining of the character of lower rank units on the basis of structural knowledge of configuration that are organized higher.

The above-mentioned pattern finds its application in the investigation into the relations "*man-environment*", on the areas not much transformed. As concerns the environments transformed by man to a greater degree—towns, industrial centres an the like, those are not the natural conditions but man-made creations that impose the style of functioning. However, despite this fact, the levels of natural environmental organisations—even under urban or industrial conditions—are not completely deprived of their individual character, their differentiation becoming, sometimes, even more visible. This results from the disturbances in the phenomenon of the continuum of natural conditions provoked by man's multilateral and strong interferences.

The gradual mutual penetration of the properties of natural (and semi-natural) configurations—the determination of their delimitation being often possible only in statistical categories—is replaced by the occurence of the dis-continuum that depends on anthropogenic conditions and owing to it the limits between the structures become clearer.

The differences between the technogenic and both natural and semi-natural structures consist, however, of a completely new system of economic management of matter and energy as well as of different exchange of information with sourroundings. Generally speaking, as concerns the natural environments not much changed by man (in other word—"*rural*" environments), there exists a visible tendency towards leveling of differences in the potential of information (in natural structures these differences are so small that even those neighbouring behave as they would be partially, if not completely, isolated) while in the case of technogenic ones are concerned, the differences of potential not only

do not diminish but they gradually increase in proportion to the scientific-technical development. In consequence this phenomenon results in an increasing differentiation of the technogenic geo-systems, which finds its expression both in the structural differences and in the character of the flow of information. These differences have been more widely analysed in other papers.[2]

In this way the "*natural environment*" is understood in this paper as an open self-regulating system composed of lower-rank structures, appearing in a hierarchical order. This system occupies a definite place in space determining, in the same time, the functional utility of a given area as concerns the particular forms of its use and it determines the limits of man's admissible interference in the existing natural systems. The system "*natural environment*" is, in the same time, one part of the meta-system "*man-environment*". Thus—as concerns the approach presented here—the system is in character similar to the concept of the "*interaction type*".

II

The concept of "*rural area*" is even more controversial than that of natural environment. There exist many opinions as concerns the real meaning of "*rural character*", there exists a separate science—"*ruralistics*"—dealing with shaping of rural landscape and, finally, there exist the institutions and research programmes dealing with these problems but no univocal definition exists that would determine the real meaning of "*rural area*".[3]

Does it embrace everything which is not "*urban*" and which is not "primeval" ? Or maybe, it is composed of the areas in which the biogenic forms of use (agriculture, forestry, recreation, etc.) are preponderant ? If so, than how—in the first case—to differentiate between the rural and non-rural areas and what should be the measure of such differences ? In the case of a free circulation of information, of goods, technical innovations and the like, and also in the case of a consolidating process unifying social attitudes, style of life, the determination of differentiation indices becomes more and more difficult. Those which some years ago were adequate from the point of view of social realities today are only partially reliable and—in the near future—will be of historical importance.

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[2] A. S. Kostrowicki, *Studies on the transformation of the natural environment by man*, Geogr. Pol. 22, Warszawa, 1972.
A. S. Kostrowicki, *Structural changes of biocoenoses under the influence of human activity*, Geogr. Pol. 24, Warszawa, 1972.

[3] Interesting deliberations on the classification of land uses in a rural environment, and a rich set of literature on this subject can be found in the collective work: Approaches to Land Classification, published by FAO in 1974, in Rome as a 22 issue of Soils Bulletin.

But if we adopt the second definition—domination of biogenic forms of use making—than the two problems will emerge.

Firstly—what sort of domination we have in mind? The spatial one—measured by the share of the surface occupied by these forms (together with the accompanying devices, housing, constructions etc.), or the functional one—which is determined by the relations existing, in the produced income, between the biogenic and other forms of management; or, maybe, the demographic-social one, expressed by the percentage of the population making the living on these sectors; or, finally, the structural one, measured by investment outlays for fixed assets. The signalized differences have their impact on the method of research, and they make it necessary to apply different logical models and different algorythms and they also require other scope of knowledge as concerns the basic information.

Secondly—it should be decided whether the "*rural area*" is a separate whole complex from the socio-economic point of view? Whether there exist the elements integrating the particular forms of economy into one structural-functional structure, being analogous to "*natural environment*", or are they independent? If the latter is the case then combining them into one system would lack substantial bases. Does then, the concept of "*rural areas*" comprise a typological aspect, at least poorly expressing the differetiating elements, or is it only a generalizing term? It would be difficult to give a universal answer to that question. As far as the natural environment is concered, there are no doubts that under the "rural" conditions the way of functioning of such a structure is adopting specific forms, different from the primeval model as well as from technogenic urban-industrial one. Thus it is, qualitatively a separate model of functioning of nature and representing as such, definite typological quality. Constatation of the existence of analoguous relations within the framework of the second group of interactions, that is in the socio-economic environment, would enable a complete investigation into the areas under consideration on the basis of uniform methods and criteria, resulting from the assumptions comprised by the general systems theory. Such investigation would be of significant practical importance, as it would be possible, on their basis, to prevent the disfunctions of any type, resulting from both the contradictions between the forms of land use and environmental conditions as well as from the spatial exclusion of these forms.

Up till now, the research work mainly concerned the internal structures and functioning of particular spatial-economic systems (agriculture, forestry, recreation and the like) and at the most their conditioning and results. Owing to such research we have now a satisfactory understanding of interactions taking place within homogeneous natural-economic sy-

stems (as well as between them, but exclusively in terms of economic--demographic categories). As concerns the functional—structural interrelations between the structure different from typological point of view and connected owing to spatial community, they have been investigated to a much smaller extend. Of course, it would be possible to determine—on the basis of the existing level of knowledge—certain common features, connecting the types' or forms of "*rural*" land use. They are, among the others, as follows :

— the above-mentioned biogenic character of the exploitation of natural resources, that is the use-making of environmental valours through biosphere, its elements—plants, animals or biocoenoses—being subject to economic activities ;

— the presence of specific biocoenotic—genetic thresholds, limiting the field of manoeuvering as concerns both maximalization of production and the possibilities of changes in the existing functions of use-making ;

— "weakness' of biogenic structures, expressed by an easy acceptance of both positive or negative technogenic impacts ;

— making the whole management process and its results dependent on the changes—difficult to be foreseen—in the influence exerced upon the exogenic elements of natural environment (climate, precipitations, an the like) ;

— making not only production but the style of social life, taken as a whole, as well, dependent of natural rhythm, determining, in advance, the tasks to be fulfilled, the rate of work tension, leisure time-table etc.

In addition to these obvious features, there exist the other ones, as well which are more subtle, often insufficiently analysed and different for various regions of our globe.

The above-mentioned features points out the community of "rural" forms of land use, that has been given the shape in the course of history. However, one should not draw conclusions, on this bases, as concerns their mutual influencing, or as concerns the relations connecting them with the other economic sectors.

The answer for the enumerated questions can be only given by comparative studies.

III

This part of the elaboration will consist in a presentation of the attempt of a complex approach to interactions occuring between the particular economic sectors, special consideration being made of interference of these sectors into the natural environment. This attempt, by no means a perfect one, and based only on a qualitative orientation in mutual relations, is more a methodological proposal than a solution of the task we have been faced with.

Preparation of the matrix of interactions in the 8 types of man's economic activity (fig. 1) has been the basis of the deliberations presented in this paper.

Each out of the 64 basic fields in the first rank has been divided into the following units :

— the field of spatial influences (aspect of competition with space, syntopic or allotopic factor etc.),

— the field of influences exerced upon the quality of a natural environment,

— the field of influences exerced upon the population living by work in a given sector,

— the field of influences exerced over the processes of production, technology and effects (functioning of the system).

In regard to every field of the matrix, formed in this way, the character of influences exerced by the remaining fields has been evaluated from the point of view of this intensification as well as from that of both positive or negative effects for a given unit. It is in this way that there has been obtained the matrix of mutual influences comprising 1024 fields of interaction, everyone being analysed under the angle of four qualitative features (positive-negative, strong-weak). In the cases in which the influence exerced over a given group of features (field) was both negative and positive in character it has been reckoned among both variants. For the formulation of evaluations the acquired knowledge of interactions and of their effects served as basis ; in all cases (few in number) of lack of any empirical data, the interactions have been qualified as non existing, even despite the subjective convinction of their occurence.

The analysis of data obtained in this way has make possible to characterise particular structures from the point of view of effects and intensification rate of influences exerced mutually, to determine the importance every out of the 8 forms of management as the emitor (donor) of both positive and negative influences and as the imitor (taker) accepting the influences come from the outside. The material achieved, has given the determination possibility as concerns the so-called information potential, expressed as the quotient of the number of influences emited to the intaken (the information potential as a measure of the degree of the structural independence) and, finally, of determination of resemblance degree in the rate of interaction intensification.

The structures under consideration, of mutual relations between interactions of the all sections of matrix would overpass the framework of this paper, that is why, by way of example, we shall present only the interaction structure of one system, namely that of agriculture (fig. 2).

This pattern neither takes into consideration the rate of intensification of particular influences nor the sources they come from, because

	Agricult.	Forestry	Water management	Recreation	Industry	Transport	Settlement	Services
Agriculture	A—A	A—F	A—W	A—R	A—I	A—T	A—S	A—V
Forestry	F—A	F—F	F—W	F—R	F—I	F—T	F—S	F—V
Water management	W—A	W—F	W—W	W—R	W—I	W—T	W—S	W—V
Recreation	R—A	R—F	R—W	R—R	R—I	R—T	R—S	R—V
Industry	I—A	I—F	I—W	I—R	I—I	I—T	I—S	I—V
Transport	T—A	T—F	T—W	T—R	T—I	T—T	T—S	T—V
Settlement	S—A	S—F	S—W	S—R	S—I	S—T	S—S	S—V
Services	V—A	V—F	V—W	V—R	V—I	V—T	V—S	V—V

Fig. 1 Martix pattern of the influences exerced by the basic forms of land use (management)

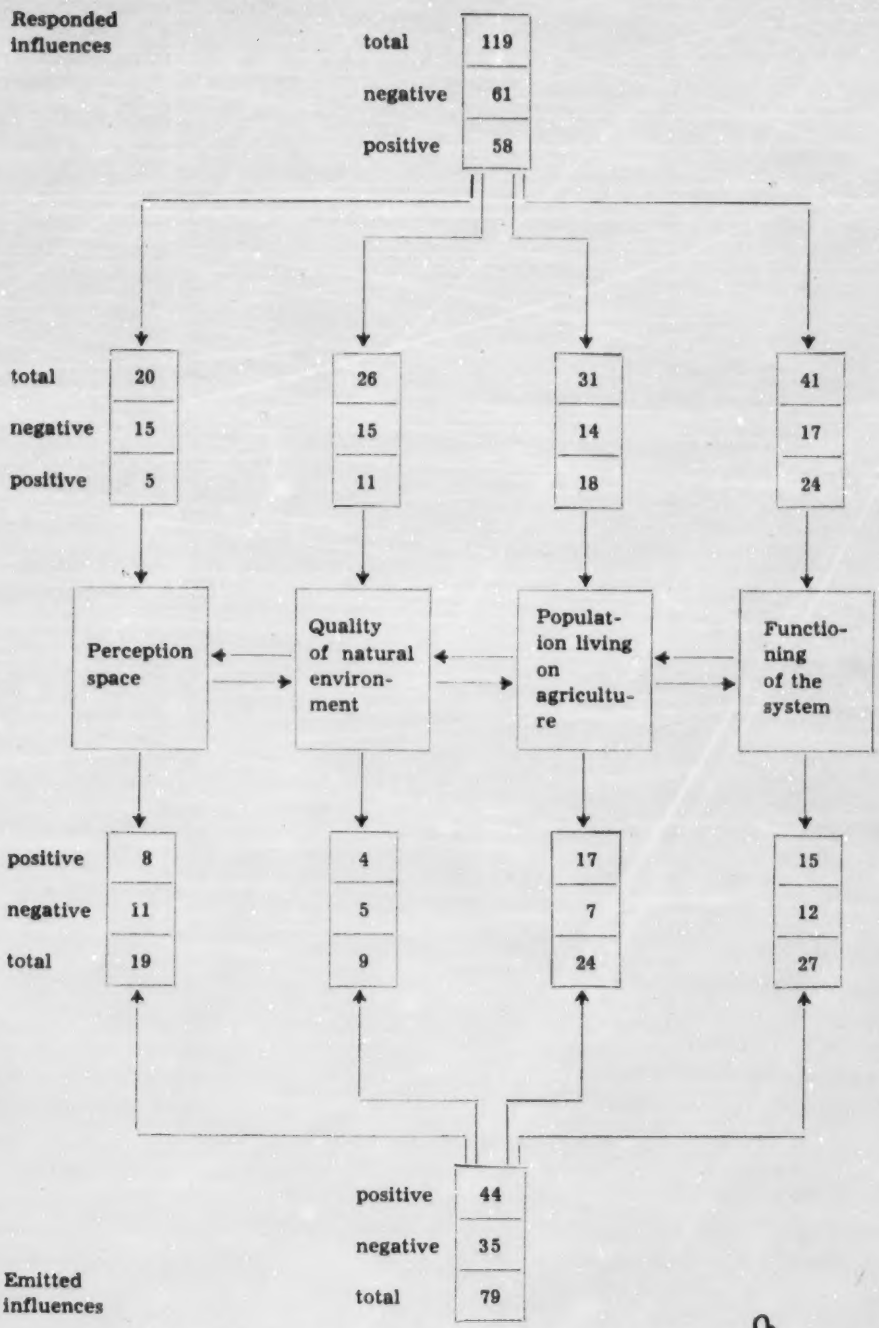

Fig. 2 Interaction structure of agricultural system.

it would make the picture too complicated. As it can be seen from the pattern the greatest number of influences, both positive and negative ones, concerns the socio-economic sphere. The influence exerced upon natural environment is considerably weaker and, moreover, the negative interactions are dominant in this group, as regards both the space and the natural valours.

The structure of influences from the part of systems analysed as "*donors*" and "*takers*" as well as the index of information potential (the relation between the donors and the takers) are illustrated by tables 1 and 2.

Table 1. The structure of the influences emited by managament systems and the value of the index of information potential (quotient donor/taker).

Influencing system (donor)	sum of influences	in it		summarized potental index	in it	
		positive	negative		positive	negative
Industry	131	67	64	2.3	1,3	9,2
Urbanisation	130	79	51	1,4	1,2	1,8
Transportation	104	72	32	1,3	0.9	8,0
Recreation	97	61	36	0,8	0,8	0,7
Agriculture	79	44	35	0,7	0,8	0,6
Water management	76	62	14	0,8	1,4	0,3
Services	65	58	7	0,8	0,8	3,5
Forestry	51	38	13	0,6	1,1	0,3

Table 2. Structure of influences to which the management systems respond.

Responding system (taker)	Sum of taken influences	including	
		the positive ones	the negatiwe ones
Recreation	124	72	52
Agriculture	119	58	61
Urbanisation	99	70	29
Water management	94	45	49
Forestry	85	35	50
Transportation	83	79	4
Services	77	75	2
Industry	58	51	7

As it results from the data presented, the strongest emitor (donor) of both positive or negative influences are, in concordance with the assumption, industry and urbanisation. However, though the index of industrial potential is high, especially in the group of negative influences, it is relatively low for urbanisation.

As concerns the "*takers*" first places go to: recreation, agriculture and urbanisation. However, a separate analysis of positive and negative influences will bring in effect a situation in which in the "*positive*" group the first places will take: transportation, services and recreation (thus, various forms of service functions) and in the "*negative*" one—agriculture, recreation and forestry.

Generally speaking, we can distinguish a sort of two groups of systems: that with the preponderance of emission over reception (thus with an information potential index greater than unity) to which belong the technogenic forms of land use—industry, settlements, transpoert; and that with a preponderance of reception over emission, to which belong all the biogenic forms of management in addition to services.

The presented picture is subject to far-reaching changes, if we take as basis not a definite system, taken as a whole, but the elements of the second rank—natural environment, population, functioning and the like.

The enclosed tables 3 and 4, representing the structure of influences exerced by the analysed forms of management over the natural environ-

Table 3. Structure of impact of various economic systems on natural environment and informative indices of potential interactions between these systems and natural environment.

Responding system (donor)	sum of impacts on natural environment	in it		summarized potential index	potential	
		positive	negative		positive	negative
Industry	79	10	69	3,4	0,6	13,8
Urbanisation	73	13	60	1,4	0,2	2,9
Transportation	57	18	39	1,3	0,6	3,0
Recreation	54	19	35	0,8	0,5	1,2
Water management	47	37	10	0,8	3,4	0,2
Forests	31	23	8	0,6	5,7	0,2
Agriculture	28	10	18	0,4	0,3	0,6

Table 4. Structure of influences to which the environmental conditions react.

Responding system (taker)	Sum of taken influences	including	
		positive ones	negative ones
Recreation environment	71	47	24
Agricultural environment	66	37	29
Water environment	57	11	46
Forest environment	55	4	51
Urbanized environment	53	21	33
Transportation environment	45	31	13
Industrial environment	23	18	5

ment (the "*services*" being excluded from the tables as having no major importance) can serve as an example of differences.

In these tables two groups can also be distinguished : that with a potential higher than one, thus with the preponderance of the emission of influences into the environment over their in-take from it, and that with a lower potential, that is with taker of influences either from the environment or through it. The following factors belong to the first group : industry, settlement, and transport, and to the second group : the remaining ones.

As concerns the group pf negative influences, the industry has the highest potential. It has a special place in the table. The potentials of transports and settlements (urbanisation) are similar, however with a presence of small preponderance of the influences exerced by transports over those of urbanisation as concerns the effects harmful for environment.

The highest potential of positive influences, that is the highest reclamation value of environment, reveal forests and water relations ; agriculture occupying the separate position and being characterized by the lowest values of potential. This indicates that natural conditions in agriculture are susceptible to the interferences coming from the outside and, in the same time, that agrogeosystems exercise a limited influence upon other structures.

Determination of the intensity rate in the case of interactions occurring between the analysed structures is a separate problem. The percentage share of influence (the emited and taken ones together) in relations to the matrix maximally possible in a given structure, in other words : the share of the matrix fields filled up in relation to the total of fields has been adopted as the measure of intensity. The results obtained separately for the whole class and for the natural environment have been presented, under the form of Czekanowski's[4] diagrams on Figs. 3 and 4.

The first diagram illustrates the intensity of interactions between the analysed systems, considered as a natural-social-economic whole. Three groups can be distinguished on it. The first one, marked with the highest values of interactions composed of : industry, urbanisation, services and transports. The second one comprises agriculture, water management and recreation, the latter one being, obviously, of a temporary character. It is a link betwen the urban-industrial complex and the remaining ones. The natural-economic forest system occupies an isolated position.

In the second diagram, representing the intensity of interactions between the analysed systems, considerations has been made only as re-

[4] see: S. Lewiński. *Taxonomic methods in regional studies, Economic regionalization and numerical methods*, Geogr. Pol. 15, Warszawa, 1968.

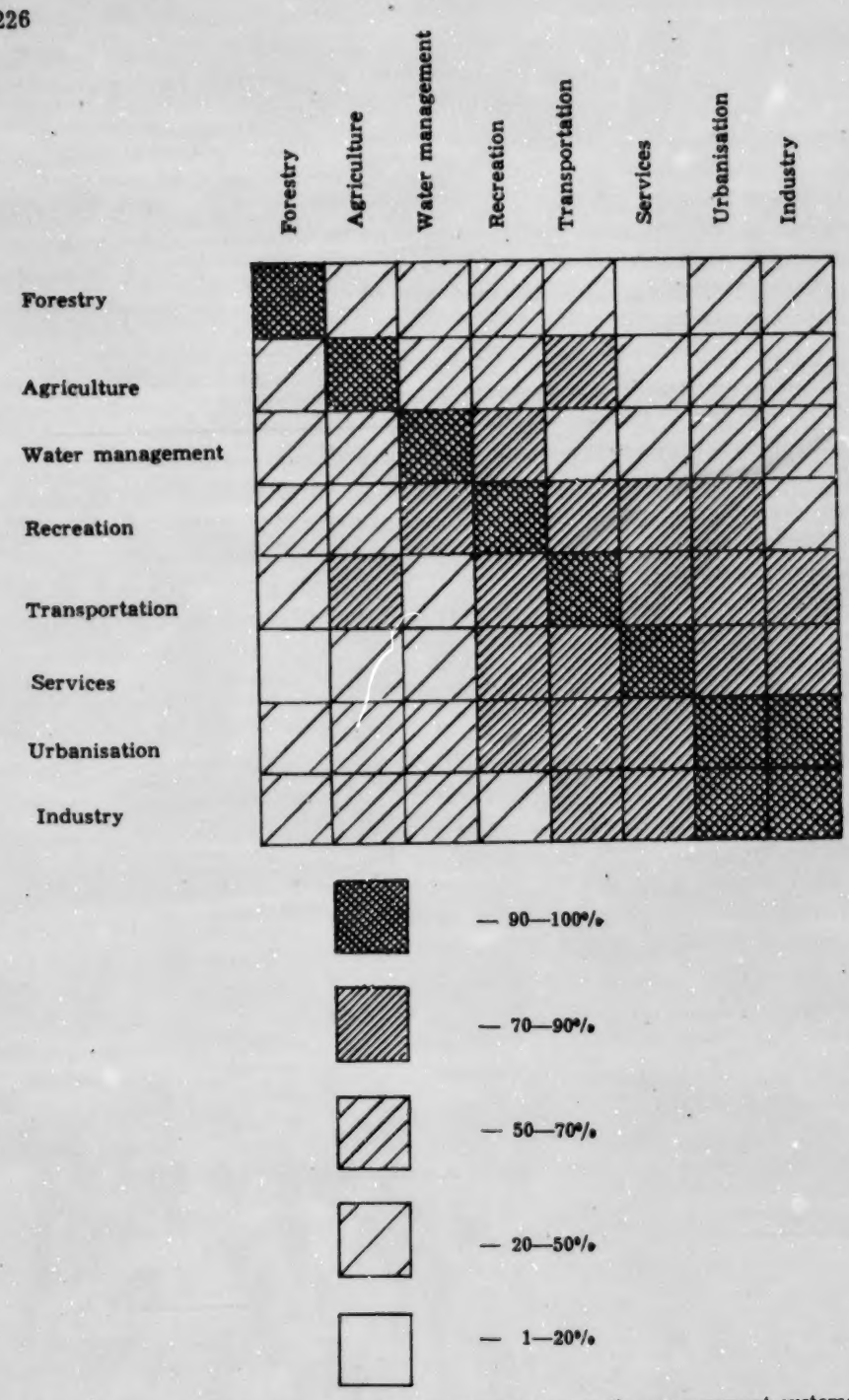

Fig. 3. Diagram of the intensity of interactions between the management systems.

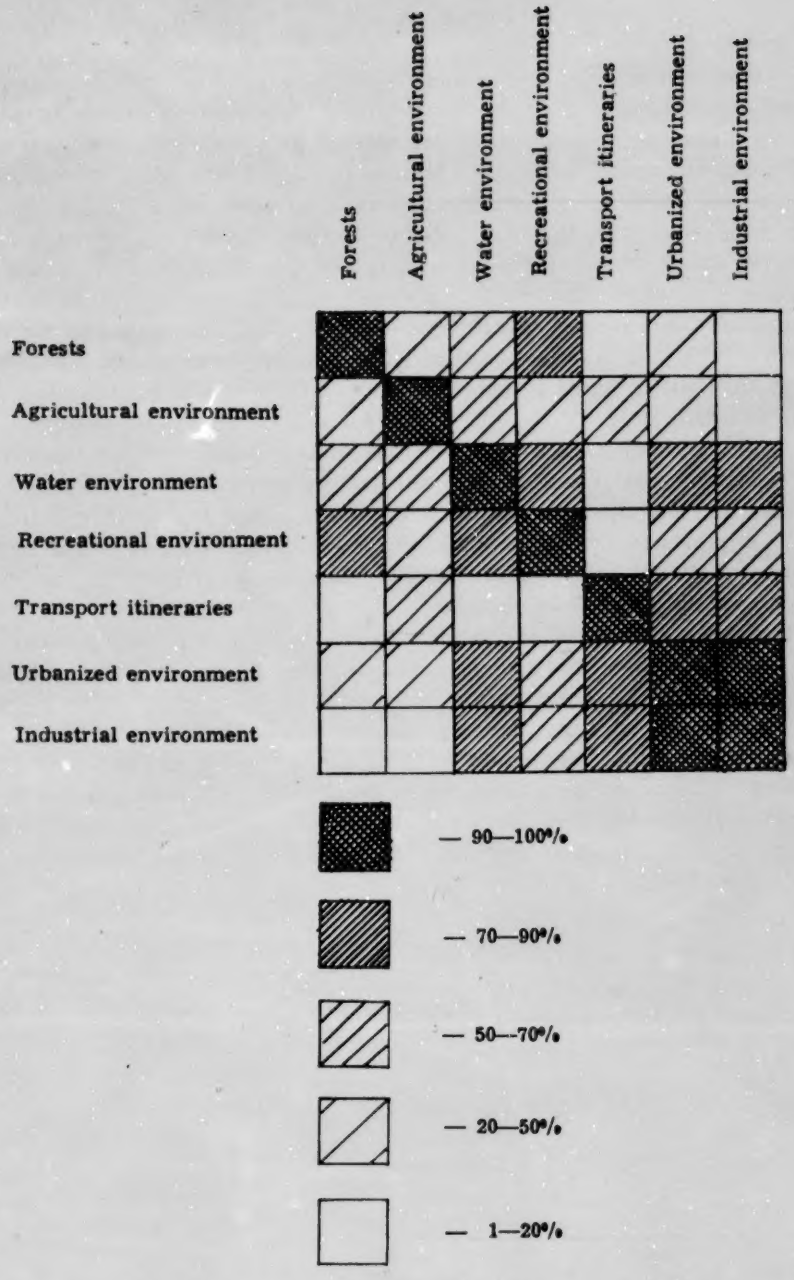

Fig. 4. Diagram of the intensity of interactions between the management systems and the natural environment.

gards the influences concerning, directly or indirectly, the natural environment.

The picture achieved reveals a smaller contrast degree and it is more "*washed out*" than the former ones. Attention is drawn to a distinct coupling of intensities of interactions in a water environment with the urban-industrial complex on the one hand and recreation, on the other. The isolated position of agrogeosystems is, as well, more pronounced. As concerns the forests, they are—owing to strong links with recreation and waters—much more integrated with the whole structure than it was visible on the general diagram.

It can be assumed that the "*washing out*" of the picture is not incidental. It is the expression of unity of natural environment as well as of gradual diffusion of transformations, which depends on the degree of man's interference.

The methodical attempt presented in this paper, and the theoretical deliberations that it includes are but an initial stage in the research concerning the spatial-functional differentiation of the socio-economic structures approached from the point of view of their relation to the conditions of natural environment. Further studies should have, in my view, three orientations: development of theoretical conceptions, making the matrix a more detailed one, in order that it embraces all the possible types of interactions and, finally, introduction of quantitative standards instead of qualitative evaluations.

Improving of our knowledge on these relations and introducing of measurable evaluations should be accompanied by a continous verification of concepts, as well as of evaluations as in the science on environment—and, maybe, in other disciplines dealing with the economic-spatial problems, as well—many stock opinions have been adopted that require a revision.

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RURAL AREAS A AS MULTIFUNCTIONAL SPACE

The socio-economic development of countries is accompanied by both qualitative and quantitave changes in their spatial organization, which result from the differences in the expansion ability of individual economic systems. Such notion as "rural space" and "rural settlement", had, for a long time, an almost identical meaning to "agricultural" and "agriculture". The term "rural space" meant almost the same as "agricultural space" and the term "rural population" stood for "agricultural population", besides the biogenic terms of utilization of natural resources (agriculture, forestry, fishing). Alongside with the processes of industrialization and urbanization an increasing role is played in rural areas by those functions which so far were regarded as being of external character, such as industry, building, and transportation, and which in the modern economy are highly dynamic. Their expansion caused the taking over of large rural spaces which eventually were used more intensively and transformed in a completely or almost completely irreversible way.

Traditional geographical research works on the problems of agricultural land use, agriculture and rural settlements do not cover any more the entire rural space, as it has changed from the monofunctional agricultural space into the polyfunctional one, with a simultaneous development of both exogenous and endogenous functions. Thus, rural spaces *de natura* become more and more limited, and at the same time growing numbers of population concentrate in urban and industrial districts, demand a higher standard of living, which includes better food, more recreation, etc. Non-agricultural branches of economy also put greater demands for rural resources in terms of landscape beauty, as well as natural, labour and demographic resources. The existence of such phenomena makes it necessary to develop rationally the rural space through its proper use which would satisfy the needs of both rural and urban communities, i.e. the all-social needs.

For the above mentioned reasons the rural area as a multifunctional space, has therefore been in the last several years, a subject of study by various specialists : geographers, economists, planners, etc. Special attention should be paid to the activities of FAO (Food and Agriculture Organi-

zation of the United Nations) and subsequently of the IGU (International Geographical Union). The discussion of land use problems which was started in 1956 by a special working group of the European Commission on Agriculture, in cooperation with the European Forestry Commission of FAO (Rome 1967) was subsequently extended to cover the entire problems of planning of the rural space. Those problems were also discussed at the First and Second Ad Hoc Conferences on the Planning of Rural Areas in Zollikofen, Switzerland, in 1969 and in Leon, Spain, in 1973. These two conferences reviewed some methodological problems and also debated on the role of various functions which appear in the rural space, on the achievements of various countries in the planning of rural areas, and finally on the problems and methods of integrated rural planning. Reports from the conferences contain many papers on rural functions (Zollikofen), and rural planning (Leon), as well some theoretical and methodological papers. Papers by Professor Gerald P. Wibberley, an outstanding specialist in the economy of rural areas, should be quoted among the most interesting contributions. Professor G. P. Wibberley was also Chairman of the group of experts working on methodological problems and research work in rural planning, convened by FAO. The group met twice: in Rome (1972) and Geneva (1975).

Geographer's contribution to FAO activities was slight. Only a few of them took part in the two Ad Hoc Conferences. Among them Professor J. Kostrowicki became eventually a member of the Experts' group. To increase interest and participation of geographers in the studies on those important problems the Working Group for Rural Planning and Development, presided by Dr G. Enyedi, was established within the IGU in 1972. Its main objective is the ogranization and coordination of international geographical research work on rural problems. In 1975 Enyedi organized a discussion of the research objectives of the rural geography based on material sent to him by various geographers in answer to his 2nd Questionnaire. Enyedi emphasized the necessity to determine the subject and targets of geographical research on rural regions, to define such notions as the "rural space" and "rural resources", and also to examine the problems of the typology and planning of rural areas.[1]

Most of the geographers dealing to date with rural areas concentrated their efforts on the study of historical transformations in the morphology of the rural landscape. Only recently more interest has been focussed on rural functions, their combinations and interaction between the rural functions and the natural environment. They also emphasized the importance of quantitative methods applied in those studies. Since research on the problems of rural areas treated as a multifunctional space

[1] In 1976 the group was converted into a full-fledged IGU Commission on Rural Development.

is fairly recent, results obtained so far cannot be yet considered as a proper basis enabling an agreement to be reached from the point of view of systematics, typology and regionaliaztion both in statical and dynamic respects.

This paper is mostly based on the FAO and IGU materials and aims at presenting for discussion certain important research problems concerned with the rural area. To undertake research work in this new discipline, one has, first of all, to establish its paradigm, that is to define the subject and the objectives of the research.

It is not easy to formulate such a definition of the rural area which would clearly state both the notion itself and its spatial projection. A precise definition, if found, would serve not only methodological purposes but also cognitive and practical aims.

The rural space in contrast to the urban space, which is characterized by technogenic functions (industry, building, transportation etc.), seems to be characterized by a dominance of biogenic functions (agriculture, forestry, pisciculture and so on), which brings about a more extensive land use, a lower density of population, its different professional composition, and different relations between the place of work and that of residence. The rural space is also characterized by relatively smaller technical inputs invested in the infrastructure. Since a rural area is a social unit it should be examined not only in the spatial aspect but also in historical and cultural ones. A wide-range examination of the standard of living and rural infrastructure in general must not be overlooked in the research work.

The above characteristics of the rural area, based mostly on the spatial-economic systems, are far from being a basis for an unequivocal and precise definition, but only point to certain problems at varying levels of importance. Their significance depends on the approach to the problem by individual specialists. A. S. Kostrowicki presented in his paper an interesting and unequivocal proposal, which systematizes the rural space from the point of view of the natural environment. He enumerates some common features, which bring together the forms of the rural land use, such as : biogenity of natural resources, the existence of some biocenotic and genetic thresholds which limit the field of the rural forms and activities, the influence of unforeseen weather changes and the dependence of the rural way of living and agricultural production on the rhythm of the nature, etc.

The trends of socio-economic development have so far influenced the interdependence between the forms of economy in rural, urban and industrial areas. This can be observed in the structure of functions in those areas. Next to the areas which show a clear domination of either rural or urban functions there exist mixed or transitional areas in which technogenic functions, more aggressive by their nature, have expanded at the

cost of purely rural functions. The existence of such mixed or transitional areas makes the spatial delineatation of the rural area still more complicated. The expansion of urban, more dynamic functions goes at a different pace in various areas, depending on the level of their general economic development. These changes outpace the administrative division into urban and rural areas, which has a great influence upon the standard of living and the rate of the expansion of urban functions.

The existing administrative divisions bring together, as statistical units, the areas functionally heterogenous, both urban and rural or industrial and agricultural. This makes it even more difficult to gather information not only on the land use but also on the functioning of individual socio-economic systems. To distinguish between administrative and geographical boundaries, to differentiate rural areas within urban limits, and urban areas within rural limits, would make it necessary to carry out microgeographical investigations. Their scope should be agreed upon in the course of research, but it should be different for urban and rural areas. Suburban zones, transformed in result of the expansion of urban features, which is a continuous phenomenon although its range is difficult to graph within a short span of time, are a special problem.

The next controversial problem concerns the question whether all the functions found in the rural space, including those typical for the urban area, are closely related to that space, and whether they should be a subject of studies on rural areas. It seems that all the functions typical of both the urban and rural space should be examined, because in proportion to their importance, they shape the rural space, influence the standard of living of its population, although, on the other hand, not all of them appear physically in the rural space. Attention should be drawn to functions connected with services and culture in the rural area, that is to those non-production functions which bring about the modernization of rural life and economy, and do not reduce rural resources, do not transform the rural space into the urban one. They play a different role from that of urbanization and industrialization, which reduce space used for agricultural, forestry and recreation purposes and are a cause of air and water pollution.

The economic development of rural regions should take place by means of a rational use of natural resources. The rational way of land utilization implies the awareness of the fact that urban areas while extending their range over a new space often decrease in the intensity of their development. At the same time, the intensity of land use in the rural area increases. The recommendation should be made to concentrate such technogenic forms of land use as industry and building on the areas of small importance for biogenic forms, thus increasing the intensity of land use there. Much attention should also be paid to the possibility and means of reestablishing the equilibrium in the nature, unsettled in result of man's inter-

vention. It is also very important to work out the principles for the classification of rural spaces, which would include the principles and postulates of their rational use.

Modern trends in social and economic development foresee not only the development of industry, building and agriculture, but also the development of services, an increased the standard of living and improved conditions for recreation, which need a space with special values. This problem is also connected with the use of forest and water resources, the importance of which goes beyond the needs of production and influences other rural functions as well as conditions of recreation. The protection of the natural environment as well as the development of various functions, under the condition of their spatial coordination, are necessary for a harmonious development of countries and regions. The coordination of functions in the space hould also contribute to the protection of the areas of special value for agriculture, forestry and recreation against the danger of their being taken over or reduced by some other more expansive branches of economy which could be diverted to the areas of no special value for the development of biogenic functions.

In Poland during the post-war years (1946—1973), the area of agricultural land decreased by 1.1 mln ha, i.e. by over 31% per capita (from 0.86 to 0.58 ha). In 1971 the Diet passed a bill on the protection of the areas of special value to agriculture and forestry. An executory act introduced payments for land taken over by industry, building and transportation according to its value. The areas of intensive agricultural and forestry development were established and the location of industrial investments which might hinder agricultural or forestry development was prohibited on these areas. However, because prices of land are relatively low in comparison to the total costs of large industrial or urban investments the price in itself is often no obstacle strong enough to prevent the location of new industrial investments or urban districts on agricultural, forest and recreational areas, the last even not being included in the bill mentioned above. Since the agricultural, forestry and recreation land uses are not incompatible with one another and, if properly coordinated, may constitute sufficient bases for the development of some regions, therefore protection of the areas of special value for the three functions : agriculture, forestry and recreation should be considered jointly. Besides the agricultural areas which occupy land with high natural qualities and the areas with highly intensive and productive agricultural systems, natural plant, especially forest associations as well as the areas most suitable for various types of recreation (holidays, health resorts, tourism) with the special care taken of the areas of weekly recreation, situated in the vicinity of big urban agglomerations, should also be taken under pretection.

The spatial coordination of the multifunctional rural structure and its management call for the integration of scientific research work in the field of space economy, that is on the forms of land use, on their internal structure as well as on the functioning of individual spatio-economic, cultural and social systems in the light of historical and biological conditions. Rational land use requires coordination within the framework of the national and regional planning as well as the execution of a plan previously established.

The rational land use as well as the evasion of destructions of natural, cultural and other values constitutes the main target of the research work on the rural area and functions.

To sum up, one has to emphasize that research on the problems of the multifunctional rural space is of utmost significance. They include :

1. Criteria and methods of the delimitation of rural areas.
2. Definition of the functional interrelations with regard to the importance of the individual functions in the socio-economic life of rural areas.
3. Criteria and principles underlying the definition of natural resources of the rural environment : biological, human and cultural.
4. Determination of the bases for the functioning of the rural environment, which is under constant pressure by exogenous functions.
5. Elaboration of the principles of land use in the areas of mixed functions (e.g. suburban zones), in which there is an increasing influence of technogenic functions, and in which, at the same time, biogenic land use still constitutes an important factor of the economic development and conditions for recreation.
6. The outlining of the foundations for the integrated of research work on the development of the rural space and rural functions.
7. The establishing of the general principles and methods of integrated rural planning and of the spatial coordination of the multifunctional rural areas.

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